	Ltd.
5.1.6	3 Compugen I
versi	- 200
Core	(c) 1993
ē	\sim
	Copyright

sw model
A S
using
search,
protein
OM protein
₩

September 15, 2003, 11:44:15; Hearch time 34,4229 Seconds (without alignments) 225.942 Million cell updates/sec Run on:

US-09-423-100-1 260 1 MFPTIPLSRLFDNAMLRAHR.....OEFEEAYIPKEQKYSFLQNP 49 Title: Perfect score:

BLOSUM62 Scoring table:

Sequence

Gapop 10.0 , Gapext 0.5

1107863 seqs, 154726573 residues Searched

110786 4 Total number of hits satisfying choses parameters:

lesqth: 0 length: 200000000 Minimum 1/B seq Maximum 1/B seq Post processing: Misimum Match 0% Maximum Match 100%

Listing first 45 summaries

A_Geneseq_19Jun03:* Database :

11. / StiDS1/gcqdata/geneseq/genesegp_emb1/AA1982.DAI:
2. / SIDS1/gcqdata/geneseq/gen.segp_emb1/AA1982.DAI:
3. / SIDS1/gcqdata/geneseq/gen.segp_emb1/AA1982.DAI:
4. / SIDS1/gcqdata/geneseq/gen.segp_emb1/AA1982.DAI:
5. / SIDS1/gcqdata/geneseq/genesegp_emb1/AA1985.DAI:
6. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1985.DAI:
7. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1985.DAI:
8. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1987.DAI:
9. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1989.DAI:
11. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1989.DAI:
12. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
13. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
14. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
15. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
16. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
17. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
18. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
18. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
19. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
19. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
21. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1999.DAI:
22. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA1992.DAI:
23. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA2000.DAI:
24. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA2001.DAI:
25. / SIDS1/gcgdata/geneseqy-genesegp_emb1/AA2002.DAI:
27. / SIDS1/gcgdata/geneseqy-genesegp-emb1/AA2002.DAI:
28. / SIDS1/gcgdata/geneseqy-genesegp-emb1/AA2002.DAI:
29. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
21. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
22. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
23. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
23. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
24. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
24. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
24. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
25. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
26. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
27. / SIDS1/gcgdata/genesegy-emb1/AA2002.DAI:
28. / SIDS1/Gcgdata/genesegy-emb1/AA2002.DAI:
24. / SIDS1/gcgdata/g

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

/SIDS1/gegdata/geneseg/genesegp-emb1/AA2003.DAT

22: 23: 24:

			Description		A Property of the State of the
SUMMARIES			OI		3501 300 0 0 0 0 000 0 000 0 0 0 0 0 0 0 0
			90	-	20
			Length		0 7
	æ	Query	Match		100
			No. Score Match Length DB ID		26.0
		ult	. 0		-

	Description	Human growth hormo	Human growth hormo	hGH-mini-proinsuli	Human anti-angioge	Human growth hormo	Chimeric protein,	Human growth hormo	Human anti-angioge	Human nerve growth
	10	AAY42855	AAY42856	AAY42860	AAW92265	AAP91041	AAY42861	AAP90129	AAW92264	AAP91299
	90	20	20	20	20	10	20	10	20	10
	Match Length DB	49	92	107	1.34	140	150	192	192	261
0,197.5	Match	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Score	260	260	260	260	760	260	260	260	260
Regult	. OZ	-	~	е.	4		Đ	7	80	6

Human beta-perve q	Human growth hormo	Fusion protein of	Segment of B-cell	Human growth hormo	Sequence of protei		Sequence of human	Protein sequence o	owth 1	Primary amino acid	=	Mutant human 22kDa	Human growth hormo	Human growth hormo	Ruman growth hormo	Human growth hormo	Human growth hormo	Haman growth hormo	Human growth hormo		Human growth hormo	Syman growth hormo	Human growth hormo	Human growth hormo		Human growth hormo	Human growth hormo	Human growth hormo		Human growth hormo					
AAP51033	AAR11740	AAR03255	AAR05313	ABH77327	AAP81226	AAM47922	AAP60:16	AA020110	AAW7 1 289	AAY:5809	AAY64 196	AAY04397	AAY 78425	AAC17485	AA017486	ABG94855	ABG94856	ABG94857	ABG+4458	ABG54859	ABGWARED	ALC:34861	ABG>4862	A38394863	ABG94864	ABG94886	ABG94887	ABG94888	ABG94889	ABG94890	ABG94891	ABC94892	ABG94893	ABG94894	ABG54895
7	12	11	:	23	20	23	7	18	19	50	20	50	21	22	22	23	23	23	53	.×	~ : 7	7	5.3	53	5 }	23	23	23	23	23	23	53	23	23	53
762	762	310	44	204	138	179	191	191	16;	161	: 61	191	191	1.51	191	191	191	151	151	<u>-</u>	7.6.1	14.	14]	161	. 6.	191	191	191	151	191	161	191	191	191	191
0.	o.	0.1	8.	5.	_	-	<u>-</u>	. . .	Ξ	· :		-		-		-:		-	-					2	. :	_			_	-		7	=	<u>-</u> :	
100	100.0	100	96	96	20	9.0	85	86	85	85	86	- 86	98	98	86	30	a: J	85	α: :Σ	3	70	R.F.	98 5	95	86	86	86	96	96	9.6	3D 3D	85	85	9	86
260	260	260	257	256	255	255	255	255	255	255	255	557	255	255	255	255	252	557	542	ر ان ان	522	752	255	255	255	255	255	255	255	255	255	255	255	255	255
10	11	12	13	7.7	15	16	17	18	19	2 C	21	22	23	24	25	56	7.7	28	5.7	9+	3.1	32	33	*	35	36	37	38	39	9	41	4.5	43	4	45

AAY42855 standard; protein; 49 AA AAY42855; RESULT 1

ALIGNMENTS

19-JAN-2000 (first entry)

Growth hormone: chaperone, intramolecular, i.sulin: precursor; folding; conformation; chimeric protein; cleavable; recombinant; Human growth hormone (hGH) Noterminal fragment #1.

Homo sapiens

production; yield.

W09950302-A1.

98WO-CN00052 31-MAR-1998; 07-0CT-1999.

98WO CN00052 31-MAR-1998; (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LID.

Gan 2;

WPI; 1999-610839/52.

New chimeric proteins containing human growth hormone fragment, used particularly for the production of human insulin

Claim 4; Page 28; 46pp; English.

provide human insulin with correctly linked cysteine bridges with fewer necessary procedural steps, and hence resulting in a higher yield of human insulin. The IMC sequences not only protect insulin sequences from intracellular degradation by a microorganism host, but also promote the folding of the fused insulin precursor, facilitate the solubility of the fusion protein and decrease the intermolecular interactions among the fusion proteins, thus allowing folding of the fused insulin precursor cyanogen tromide cleavage, oxidative sulphitolysis and related purification sieps can thus be eliminated adona with the use of high purifications of mercapian or the use of hydrographic absorbent resins. hormone (hGH) which is a component of a chimeric protein, hGH-mini-proinsulin (AAY42860). The hGH portion of the chimeric protein acts as an intramolecular chaperone (IMC) for the insulin precursor, enabling it to fold correctly. A cleavable peptide linker with a C-terminal Arg residue (AAY4887) enables the hGH portion of the chimeric protein to be removed after folding has taken place. Production of recombinant human insulin via an hGH-proinsulin chimeric protein can represents an N-terminal fragment of human growth

49 AA; Sequence

; 0 Gaps .. 0 DB 20; Length 49; Indels 100.0%; Score 260; DB 20; 100.0%; Pred. No. 2.Ne-25; Live 0; Mismatches 0; 49: Conservative Best Local Similarity Matches 49; Conserv Query Match ò

1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFELAYIPKEQKYSFLQNP 49

AAY42856 standard; protein; 92 AA RESULT 2 AAY42856

qa

19-JAN-2000 (first entry)

Human growth hormone (hGH) N-terminal fragment #2.

recombinant; Growth hormone; chaperone; intramolecular; instilin; precursor; folding; conformation; chimeric protein; chavable; recombinan production; yield.

W09950302-A1

9991-120 70

98WO-CN00052 31 MAR-1998;

98WO-CN00052 31 - MAR - 1998;

(TONS-) TONGHUA GANTECH BIOTECHNOLOGY LID.

New chimeric proteins containing human growth hormone fragment, used particularly for the production of human insulin ${}^{-}$

WPI: 1999-610839/52.

Gan 7;

Claim 5; Page 28; 46pp; English.

This sequence represents an N-terminal fragment of human growth hormone (hGH) which is a component of a chimeric protein (AAY42861) which also contains a human insulin precursor (AAY42859). The hGH portion of the chimeric protein acts as an intramolecular chaperone (IMC) for the

insulin precursor, enabling it to fold correctly. A cleavable peptide linker with a C-terminal Arg residue (AAY2857) enables the hdf portion of the chimeric protein to be removed after folding has taken place. Production of recombinant human insulin via an hdH-prolnsulin chimeric protein can provide human insulin with correctly linked cysteine bridges with fewer necessary procedural steps, and hence resulting in a higher yield of human insulin. The IMC sequences not only protect insulin also promote the folding of the fused insulin precursor, facilitate the solubility of the fusion protein and decrease the intermiscular. interactions among the fusion proteins, thus allowing folding of the fused insulin precursor at commercially useful high concentrations. The procedural steps of cyanogen brondle cleavage, oxidative sulphitolysis and related purification steps can thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic absorbent resins

92 AA; Sequence

·, Gaps . O 160.0%; Store 260; DB 20; Length 92; 160.0%; Pred, No. 4.6e-25; Indels ं 4.60-25; C: Mismatches Pred. No. Best Local Similarity 100. Matches 49; Conservative Query Match Matches

1 MEPTIPLSRIFT-NAMERAHREHQLAFTTYQEFEFAYTPKFQKYSFLONP 49

ે qq RESULT 3 AAY42860

AAY42860 standard; protein; 107 AA

AAY42860;

ΧΥ

(tirst entry) 19-JAN-2000

hGH:mini-proinsulin chimeric protein.

conformation; chimeric protein; cleavable; recombinant; Insulin; precursor; growth hormone; chaperone; intramolecular; production; yield folding;

Synthetic.

Homo sapiens

WO9950302-A1

07-0CT-1999

98WO-CN00052 31-MAR-1998;

31-MAR-1998;

(TONG-) TONGHUA GANTECH BIOTECHNOLOGY LITD

Gan 2;

WPI; 1999-610839/52.

New chimeric proteins containing human growth hormone fragment, used particularly for the production of human insulin

Claim 13; Page 30; 46pp; English.

This sequence represents a chimeric protein, hGH-mini-proinsulin.

This chimeric protein contains an N-terminal fragment of human growth hormone (hGH) of the sequence given in AR442855, a cleavable peptide linker (AA442857), and a human insulin precursor comprising insulin A and B chains (AA442859). The hGH portion of the chimeric protein acts as an intramolecular chaperone (JMC) for the insulin precursor, enabling it to fold correctly. The cleavable peptide linker has a C-terminal Arg residue which enables the hGH portion of the chimeric protein to be removed after folding has taken place. Production

Ö of recombinant human insulin via an hGH-proinsulin chimeric protein can provide human insulin with correctly linked cysteine bridges with fewer necessary procedural steps, and hence resulting in a higher yield of human insulin. The IMC sequences not only protect insulin sequences from intracellular degradation by a microorganism host, but also promote the folding of the fused insulin precursor, facilitate the solubility of the fusion proteins and decrease the intermolecular interactions among the fusion proteins, thus allowing folding of the fused insulin precursor at commercially useful high concentrations. The procedural steps of cyanogen bromide cleavage, oxidative sulphitolysis and related purification steps can thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic absorbent resins. Auman; anti angiogenic; prolactin; placentil lactogen; htt.; angiogenesis; quarath harmone; htt. htt. v. capiliary endothelial cel; proliferation; placental vascularisation; pregnancy; treatment; angiogenic disease; tumbur; inhibitor; malignant; angiofibroma; atteriovenous malformation; would healing; proliferative retinopathy; nacusar degeneration; trachoma; granulation; glaucoma; ocular, uvetis; 'cture; Osler.Weber syndrome; psoriasis; fibroplasia; scleroderma; Rapus's sarcoma; vascular adhesion; quent therapy; pre-eclampsia; intrauterine growth retardation; placential dysfunction. This invention describes novel human anti-ar ogenic peptides derived from 10 to 150 consecutive amino acids selected from the N-terminal end of human placental lactogen (APL), human growth hormone (HGH), growth hormone variant (HGH-V), or human projectin. Such peptides (i) Inhibit Gaps New anti-andiogenic peptides · comprise N·terminal fragments of human placental lactogen, human growth hormone, growth hormone variant or human prolactin 0 100.0%; Score 260; DB 20; Length 107; 100.0%; Pred. No. 5.4e-25; ive 0; Mismatches 0; Indels 6; 1. MET TIPLISPLEDNAMLRARRIHOLAFOTYQEFERAYIPKFOXYSFLUNP 49. FELTIFICATION TO THE TESTIFICATION OF THE SECRET OF THE THE SECOND TO THE SECOND SECON Human anti andiogenic peptide 16K hGH Met. 1Prol33. Struman I, Taylor K, Weiner RI; Claim 4: Page 49-50; 87pp; English, AAW92265 standard; Protein; 134 AA 58WO-US09691 97US-0046394 (first entry) 49: Conservative (REST) UNIV CALIFORNIA WFI: 1999 045192/04. Ouery Match Best Local Similarity 107 AA; N-PSUB; AAX01707 WO9851423 A1. Homes sapiens. 12 MAY- 1998; 13-MAY-1997; 98-JUN 1999 Martial JA, 19 NOV 1998. Sequence Matches AAW92265 9 × $\begin{array}{c} \mathcal{C} \times \mathcal{$

```
.
:
                                                                                                                                                                                                                                                                                                                                             Kaposi's sarcoms, trachoms, vascular adhesions, chronic varicose ulcers, leukaemia, and reproductive disorders such as folicelar and luteal cysts and charicoarchoma. They can also be used as contrareptive agents. DNA encoding the peptides can be used in gene therapy. The measurement of abnorms, levels of Niserminal fragents of hele help help of help can be used in assays for impairment of vascular development associated
                                                                                                                                                            peptides can be used for preventing or treating e.g. malignant tumours, angiolibroma, arteriovenous malformation, arthritic such as rhoumatoid arthritis, atherosclarotic plaques, corneal graft neovascularisation, delayed wound healing, proliferative retinopathy such as those occurring in Adomophile joints, inappropriate vascularisation in wound healing such as hypertrophic scars or keloid scars, neovascular ylaucoma, ocular tumour, uvelitis, non-union fractures, usler "Weber syndrome, psoriasis, pyogenic glaucoma, netrolental fibroplasia, scleroderma, solid tumours,
                                                                                diagnosing a probable abnormality of placental vascularisation during pregnancy. The peptides can be used for treating an adjoigenic disease it a subject, for inhibiting tumour formation or growth in a patient or for modulating vascularisation of a patient's placenta. In particular, the
capillary endothelial cell proliteration and organisation (ii) inhibit angiogenesis in chick chorioallantoic membrane and (iii) binds to at least one specific receptor which does not bind an intact full length hGH, hPL, prolactin or hGH-V. The invention also describes a method for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New human nerve growth factor gene encoding fusion protein
having cleavage site for thrombin, useful for treating geriatric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     With pre eclampsia, intrautering growth retaidation, and placental dysfunction.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           190.0%; Srcie 260; DB 20; Length 134; 100.0%; Pred, No. 7e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MEPTIPLSRIFICHMARKARECHOLAFOTY OFFETAY: PREOKYSFICH P. 49

MEPTIPLSRIFICHMARKARECHOLAFOTY OFFETAY: PREOKYSFICH P. 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MEPTIPLSKLFONAMERABRUHOLAFOTYGEFSEAYIPKEOKYSFLONP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human growth hormone; fusion protein; thrombin;
geriatric dementia; gervous disorders; human nerve factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70-25:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pred, No. 7e-
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; page 21; 38pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAP91041 standard: protein; 140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human growth hormone segment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   89EP-0102795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88JP-0035042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ouery Match
Best Local Similarity 100.0
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1989-243092/34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    134 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TOYJ ) TUSOH CURP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dementia, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19~FEB-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14 - DEC - 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17 - FEB-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23-AUG-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EP329175-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ohtsuka E;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAP91041;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAP91041
  ô
```

Human growth hormone segment, used at the N terminal of a fusion

```
of the chimeric protein acts as an intranslecular chaperone (IMC) for the chimeric protein acts as an intranslecular chaperone (IMC) for the insulin precursor, enabling it to told correctly. The cleavable peptide linker has a C-terminal Arg residue which enables the hGH portion of the chimeric protein to be removed retained as taken place. Production of recombinant human insulin via an hGH-proinsulin chimeric protein can provide human insulin with correctly linked cystroine bridges with fewer necessary procedural steps, and core resulting in a higher yield of human insulin. The IMC sequences not only protect insulin sequences from intracellular degradation by a microorganism host, but also promote the folding of the fuscal insulin precursor, facilitate the solubility of the fusion proteins, thus allowing folding of the interactions among the fusion proteins, thus allowing folding of the fusion proteins, thus allowing folding of the fusion proteins and decrease the intermolecular interactions among the fusion proteins, thus allowing folding of the fusion proteins and related purification steps can thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic absorbent
                                                                                                                                                                                                              ·.
protein, which contains a thrombin recognition site, and human beta nerve growth factor (beta NGF) at the C-terminal. Beta-NGF can be used to control geriatric dementia and other nervous disorders, and can be released from the fusion protein by incubation with thrombin (see AAN90577-8, AAP91034, AAP91299).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This sequence represents a chimeric protein, which contains an N-terminal fragment of human growth hormone (hGH) of the sequence given in AAY42855, a cleavable peptide linker (AAY42857), and a human insulin precursor comprising insulin A and B chains (AAY42599). The hGH portion
                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New chimeric proteins containing human growth hormone fragment, used particularly for the production of human insulin ^{-1}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                avable; recombinant;
                                                                                                                                                                                                         ·.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          e; intramolecular;
                                                                                                                                                              100.0%; Score 260; DB 10; Length 140; 100.0%; Pred. No. 7.3e-25; ive 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                   1 MEPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFUQNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (TONGE) TONGHUA GANTECH BIOTECHNOLOGY LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Insulin; precursor; growth hormone; chap. folding; conformation; chimeric protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 14: Page 30-31; 46pp; English
                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                         AAY42861 Standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98WO-CN00052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98WO-CN00052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chimeric protein, SEQ ID 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19 JAN-2000 (first entry)
                                                                                                                                                                                                       49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI: 1999-610839/52.
                                                                                                                                                                                  Local Similarity
                                                                                                                        140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               production; yield.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31 MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31 MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          07-1×T-1999
                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                  AAY42861;
                                                                                                                                                                Query Match
                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                   RESULT 6
                                                                                                                                                                                                                                                                                                                                                                        AAY4286
  88888888
                                                                                                                                                                                                                                                                                      셤
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             formed by ligating, downstream of a promoter, EGH or a deriv. (pref. formed by substruct or Met-14 with Leu) and a foreign protein. Stabillty of the vector in the terms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Recombinant vector contg. fusion protein · consisting of human growth hormone or deriv. ligated to foreign protein, for stability
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Stability of the vector in the host is greatly increased so the protein yield is higher.
                                                                                                                                                                     ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                    9.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MFPTIPLSKLFUNAMLKAHRLHOLAFUTYVEFFERAYIPKEOKYSFLONP 49
                                                                                                                     Length 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 100.0%; Score 260; DB 10; Length 192; Best Local Similarity 100.0%; Pred. No. 1e-24; Matches 49; Conservative 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                            1 MEPTIPLSRIFONAMERAHRUHOLAFOTYGEFEEAYIPKEOKYSFLONP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MEPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLONP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human growth hormone; tusion protein; recombinant
                                                                                                                  Score 260; DB 20;
Pred. No. 7.9e-25;
                                                                                                                                                                        ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Updated on 25-MAR-2003 to correct PA field.)
                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA
                                                                                                                                                                                                                                                                                                                                                                                                                               AAP90129 standard; protein; 192 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure: Fig 1: 19pp: Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAW92264 standard; Protein; 192
                                                                                                                                                                        .,
                                                                                                               100.0%;
ilarity 100.0%;
Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              87.JP-0304937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87JP-0304937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (WAKT ) WAKUNAGA SEIYAKU KK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (revised)
(first estry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (appdated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Home sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1989-209284/29.
N-PSDB: AAN90269.
                                                                                                                                          1 Similarity
49; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              192 AA;
                                                      150 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and high yield
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JP01144981-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-DEC-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02-DEC-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25 MAR-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-FEB+1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01 - Nov - 1985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07-JUN 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAP90129;
                                                            Sedmone
                                                                                                               Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAW92264
         resins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        vector
                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                         RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                              AAP90129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAW92264
S × S
                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAMES OF COLORS OF STREET AND STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  XXX
```

Ŋ

ö

Gaps

Ċ

Indels

. 0

Mismatches

.. 0

Conservative

49:

Matches

ò

Q

1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLUNP 49

```
Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis; growth hormone; hGH; hGH-V; capillary endothelial cell proliferation; placental vascularisation; pregnancy; treatment; angiogenic disease; tumour; inhibitor; malignant; angiofibroma arteriovenous malformation; arthritis; atherosclerotic plaques; corneal graft neovascularisation; wo.nd healing; proliferative retinopathy; macular degeneration; tractione; psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion; quent theirap; pre-eclampsia; intrauterine growth retardation; placental dysfunction.
                                                                                                                                                                                                                                                                                                                                       New anti-anglogenic peptides - comprise N-terminal fragments of
                                                                                                                                                                                                                                                                                                                                                  buman placental lactogen, human growth hormone, growth hormone
                                                                                                                                                                                                                                                                                      Weiner RI;
                    Human anti-angiogenic peptide hGH Met-1Phe191.
                                                                                                                                                                                                                                                                                      Taylor R,
                                                                                                                                                                                                                                                                                                                                                                             Example 3; Page 49; 87pp; English.
                                                                                                                                                                                                                         98W+ US09691
                                                                                                                                                                                                                                             97US-0046394
                                                                                                                                                                                                                                                                                                                                                           variant or human prolactin
 (first entry)
                                                                                                                                                                                                                                                                                     Struman I,
                                                                                                                                                                                                                                                                  (REGC ) DNIV CALIFORNIA.
                                                                                                                                                                                                                                                                                                        WPL: 1999-045192/04.
N-PSDB: AAX01706.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             192
                                                                                                                                                              Homo sapiens
                                                                                                                                                                                 W09851323-A1
                                                                                                                                                                                                                                             13 MAY 1997;
                                                                                                                                                                                                                         12-MAY-1998;
                                                                                                                                                                                                                                                                                    Martial JA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
```

```
Q X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NX A
from 10 to 150 consecutive amino acids scretcul from the N-terminal end
of human placental lactogen (hPL), human rowth hormone (hGH), growth
for human placental lactogen (hPL), human rowth hormone (hGH), growth
confidence variant (hGH-V), or human prolac n Such peptides (1) inhibit
capillary endothelial cell proliferation uni organisation (ii) inhibit
capillary endothelial cell proliferation uni organisation of
capillary endothelial cell proliferation in also describes a method for
capillary probable abnormality of place (ral vascularisation during
capillary vascularisation of a patient or growth in a patient or for
modulating vascularisation of a patient's placenta. In particular, the
capillary accularisation of a patient's placenta. In particular, the
capillary accularisation anitomalion, arthritic such as rheumatold
capillary acculation or content of the content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   delayed wound healing, proliferative refinopathy such as diabetic retinopathy, macular degeneration, granulations such as those occurring in Raemophilic joints, inappropriate vascularisation in wound healing such as hypertrophic scars or kellodis scars, necosasular glancoma, ocular tumour, uvetilis, non-union fractures, OSIer-Weber syndrome, psoriasis, pyowenic glaucoma, retrolental fibroplasia, sclerodorma, solid tumours, Kappsi's sarcoma, trachoma, vascular adhe lons, chronic varicose ulcers louxaemia, and reproductive disorders such as follicular and luteal cysts and choriocarchoma. They can also be used as contraceptive agents, DNA encoding the peptides can be used in gene 'herapy. The measurement of abuscimal levels of N-terminal fragments of the herapy. The measurement of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            can be used in assays for impairment of vascular development associated with pre-eclampsia, intrauterine growth retardation, and placental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 260; DB 20; Length 192;
Pred. No. 1e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best focal Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
```

(first entry)

25-OCT-1991

```
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Fusion protein consisting of human growth hormone at the N-terminal end (1st region), a 3 amino acid sequence representing thrombin recognition site, and human beta nerve growth factor (beta-NGF) at the C-terminal. Beta-NGF can be used to control griatric dementia and other nervous disorders, and can be released from the fusion protein by incubation with thrombin (see AAN%0577-8, AAP91034,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New human nerve growth factor gene encoding fusion protein having cleavage site for thrombin, useful for treating geriatric
                                                                                                                                                                                                                                                                                                                                                                                             Human nerve growth factor and human growth hormone fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ..
O
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 260; DB 10; Longth 261; 100.0%; Pred. No. 1.5e-24; ive 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human nerve growth factor, tusion protein; thrombin, geriatric dementia, nervous disorders; human growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MEPTIPLSRLFONAMIRAHRIHQLAFDTYQEFEEAY IPKEQKYSFLONP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 36; page 31-32; 38pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Jonalituers
                                                                                                                                                                                                  AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAP61033 standard: Protein; 2/2 AA
                                                                                                                                                                                              AAP91299 standard; protein; 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              89EP-0102795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88JP-0035042
                                                                                                                                                                                                                                                                                                                                  (first entry).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141..142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Home sapiens (human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Toches 49; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1989-243092/34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (TOYJ ) TOSOH CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            261 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               dementia, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17-FEB-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19-FEB-1988;
                                                                                                                                                                                                                                                                                                                              14 - DEC - 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23-AUG-1989.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EP329175-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ohtsuka E;
                                                                                                                                                                                                                                                                   AAP91299;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAP61033;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Region
Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Region
                                                                                                                                RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAP61033
                                                                                                                                                                                                                                                                                               NO X C C C C C C X R X D D D D X D X D X D X D X D X D D D D D D D D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X
```

0

```
The protein is a direct translation of the upstream tryptophan promoter operator lacking its attenuation requence and human beta NGF sequence. The product may be efficiently expressed from a transformed E.coli expression system.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human growth hormone/human nerve growth factor beta fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                    1 MEPTIPLSRIPDNAMLRAHRUHQLAFDTYGEFEBAYIPKEGKYSFLUNP
                                                                                                                                                                                                                                NGE producting recombinant Escherichia strain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hGH: hNGF; nervous system diseases; dementia
          Human beta-nerve growth factor gene product
                                                                                                                                                                                                                     Gene segment of human between spostt tactor
                                                                    Location/Qualifiers
145..262
                                                                                                                                                                                                                                                                                                                                                                                                                                                            AABli740 standard; Protein; 262
                                                                                                                                        85JP-0045773
                                                                                                                                                            85JP-0045773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   89JP-0202835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      89JP-0202835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                  Claim 32: Page 482; 71pp;
                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 100.
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25 MAR-2003 (updated)
25 JUN-1991 (first en
                               Bet.a-NGF; E.coli; ds
                                                                                                                                                                                                  WPI: 1986-281696/43
                                                                                                                                                                                                                                                                                                            See also AAN60816-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPf: 1991-128768/18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (THYLL) TOSOH CORP
                                                                                                                                                                                                                                                                                                                                262 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N PSUB; AAQ11578
                                                                                                                                                                               (OTSUZ) OTSUKA
                                                                                                                                      09-MAR-1985;
                                                                                                                                                          09-MAR-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JP0+067598 A.
                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  07-AUG 1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07 AUG-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Home sapiens
                                                                                                                    11 SEP-1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22 MAR-1991
                                                                                                 JP61205485
                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR11740;
                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                               Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR1174:
ò
                                                                                                                                                                                                                                                                                                                                                                                                              g
```

U: Mismatches

ΑA

Sapandas

```
The protein is produced by fusing DNA encoding BDF (11-) with DNA encoding BSF-2 (11.-5) and ligating the product into an expression vector See also AAR05311 and AAR05313.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                     A recombinant human nerve growth factor beta subunit-contg, protein can be produced as this fusion protein. It is purified by contacting a gel having a cation exchange gp. with the fusion protein, in the presence of urea. The purified protein is useful in a medicament for treating disorders of the nervous system, eg dementia.

(Updated on 25-MAR-2003 to correct PF field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B-coll stirulatory factoriz: interlenkin 6; B cell differentiation;
interleukin-5; tusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Proph. of human R-roil differentiation factor - from specified DNA sequence sequent, by recombinant DNA technique, gives protein of
by contacting with gel having cation exchange gp. in presence of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ·:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MEPTIPLSRLFUNAMLRAHRLHQLAFDTYQEFBEAYIPKEQKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lengtl. 262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 260; DB 11; Length 310; ilarity 100.0%; Pred. No. 1.8e-24; Conservative 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fusion protein of Breell stimulatory factor 2 and Breeil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match 100.0%; Score 260; DB 12; Best Local Similarity 100.0%; Pred. No. 1.5e-24; Matches 49; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR03255 standard: protein: 310 AA
                                                                                             Disclosure; fig 1; 7pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 31; Page 9: 17pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         specified amino acid sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88JP 0162556.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88JP-0162556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               differentiation factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Frac 49; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI: 1990-062207/09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TOY.: ) TOSOB CORP.
                                                                                                                                                                                                                                                                                                                                                                                 262 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               310 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB; AAC02028.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JP02013375-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-JUL-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-301.-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19-JUL : 1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17-JAN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AARC3255;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAROSESS
## X 8 X 0 0 0 0 0 0 0 X 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>:</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                $\circ{\circ}{\circ} \circ$ \c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sdet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 260; DB 7; Length 262; 100.0%; Pred, No. 1.56-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                used in produ-
```

.; 0

Purifich, of human neuron growth factor beta-subunit-contg. protein

^

```
Song YH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Growth hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JP63167798-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-DEC-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-PEC-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2C-NCV-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-JUL-1988.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic.
                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAP81226;
         YOO JG,
                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAP81226
         င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The sequence encoding this protein can be fused with DNA encoding B-cell differentiation factor (IL-6) and liquted into an expression vector for prodn. of a fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Preph. of Euman B-cell differentiation fretor - from specified DNA sequence segment, by recombinant DNA ter higher gives protein of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 257: DB 11; Length 144;
Pred. No. i.8e-24;
1: Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human growth hormone with collagenase recognition site.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human; growth hormone; collagenase; recognition site
                                                                                                                                            Segment of B-cell stimulatory factor-2 (IL-5).
                                                                                                                                                                                B-cell stimulatory factor-2; interleukin-5.
                                  AAR05313 standard; protein; 144 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure: Page 9; 17pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABB77327 standard: Protein: 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   specified amino acid sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  93KR-0030318
                                                                                                                                                                                                                                                                                                                                 88.19-0162556
                                                                                                                                                                                                                                                                                                                                                                   86JP-01625%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                93KR-0030318
                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Obery Match
Best Local Similarity 98.06
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                           WP1: 1990-062207/09.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GLDS ) LG CHEM LTD
                                                                                                                                                                                                                                                                                                                                                                                                      (BOYJ ) THISH PORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       144 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                See also AAR05311.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            N PSDB; AAG02028
                                                                                                                                                                                                                                                                                                                                                                   C. JUL 1988;
                                                                                                                                                                                                                                                          JP62013375-A
                                                                                                                                                                                                                                                                                                                               01-JUL 1988;
                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Home sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28 DEC-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-DEC-1993;
                                                                                                         19 .301.-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17 JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15 - MAY - 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KR289691-B
                                                                       AAR05313;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABB77327
RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 14
                 AAR05313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABB77327
                                                                       NAME OF A PART O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  င်
```

```
..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                            Recombinant human growth hormone having collagenase recognition region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The polypeptide (AAPB1226) with somatomedin-like activity and the DNA (AANB165) encoding it are claimed. A met resicual go, may be added to the N-terminal. The polypeptide acts on the bone structure of mammals, including humans, to promote bone growth. The polypeptide has high production rate and is easily extracted from bacterial culture medium and refined for use as a bone growth accelerator.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to recombinant human growth hormone having collagenase recognition region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEGULATION OF THE PROPERTY OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MPPTIPUSRIFINAMIRAB-LHQLAFDIYQEFERAYIPKEQKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTIPLSRLFDNAMLRAHRLHOLAFDTYOEFEEAY; PKEOKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98.1%; Score 255; DB 9; Length 138; 100.0%; Pred. No. 3e-24; Live 0; Mismatches 0; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Polypeptide with somatomedin-like activity - by culturing bacterium transformed by plasmid contg. gene segment with specified DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence of protein with somatomedin-like activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 256; DB 23;
Pred. No. 3.5e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 2(1); Page 609; 9pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAP81226 standard: protein; 138
                                                                                                                                                                                                                                                                                 Disclosure: Fig 3: 8pp; Korean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98.58;
98.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (TOYJ ) TOYO SODA MFG CO LID.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86JP 0310177.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8632-0310177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match
Best Local Similarity 98.v.
The 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (:irst entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ouery Match
Best Local Similarity 100.
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-MAR-2003 (updated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1988 232632/33.
N-PSDB; AAN81605.
WPI; 2002-185396/24
N-PSDB; AHL55999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              204 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      138 AA:
```

Search completed: September 15, 2003, 12:00:56 Job time: 15,4229 secs

```
Sequence 1, Appli
Sequence 5, Appli
Sequence 4, Appli
Sequence 10, Appl
Sequence 10, Appl
Sequence 11, Appl
Sequence 11, Appl
Sequence 25, Appl
Sequence 26, Appl
Sequence 73, Appl
Sequence 73, Appl
Sequence 73, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 7, Appli
Sequence 1, Appli
Sequence 5, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 73, Appl Sequence 1, Appl Sequence 51, Appl Sequence 51, Appl Sequence 4, Appl Sequence 16, Appl Sequence 18, Appl Sequence 18, Appl Sequence 37, Appl Sequence 37, Appl Sequence 36, A
                                                                                                                                                                                                                                  September 15, 2003, 11:57:40; Search time 11.2401 Seconds (without alignments) 184.449 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ą,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                             US-09-423-100-1
260
1 MFPTIPLSRLEDNAMLRAHR......OFFEEAY IPKEGKYSFLONP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Issued_Patents_AA:*

\(\cap{Gap_2}\) \(\cap{Ga
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-784-582-71

US-08-784-582-71

US-08-784-582-71

US-08-465-461-1

US-08-465-461-1

US-08-469-466-51

US-08-469-67-51

US-08-469-67-51

US-08-411-657-4

US-08-411-657-18

US-08-800-215C-18

US-08-800-215C-18

US-08-819-36

US-09-420-819-36

US-09-420-819-36

US-08-314-586-24

US-08-314-586-24

US-08-314-586-24

US-08-314-586-24

US-08-314-586-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-459-906-4
US-08-589-028-10
US-08-785-271-10
US-08-759-628-11
US-09-284-878-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-424-620B-25
US-09-280-030-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-093-383-1
US-09-284-878-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -09-284-878-5
-08-383-621-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             328717 seqs, 42310858 residies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                           OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB seq Length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Úuery
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

0000

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Run on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ģ.
```

28 164.5 63.3 191 1 US-08-468-824-8 29 164 651.1 76 3 US-08-71-728-1 30 164 651.1 76 3 US-08-71-728-1 31 159.5 61.3 190 1 US-08-996-774-1 32 159.5 61.3 190 1 US-08-996-777-720-2 34 159.5 61.3 190 1 US-08-996-77-720-2 34 159.5 61.3 190 1 US-08-996-77-720-2 35 159.5 61.3 190 1 US-08-996-7-7-720-2 36 159.5 61.3 190 1 US-08-996-7-7-720-2 37 159.5 61.3 190 1 US-08-996-7-7-720-2 38 159.5 61.3 190 1 US-08-996-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7	Sequence 8, Appli Sequence 1, Appli Sequence 4, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 3, Appli Sequence 2, Appli Sequence 2, Appli Sequence 6, Appli	Growth Hormone
28 164.5 63.3 161.5 63.3 161.5 62.3 161.6 63.1 161.6 62.1 161.6 62.1 161.6 62.3 161.6 62.3 161.6 62.3 161.6 62.3 161.6 62.3 161.6 62.3 161.6 62.3 161.6 62.3 161.6 62.3 161.6 62.3 161.6 62.3 161.6 62.5 61.3 161.6 62.5 61.3 161.6 62.5 61.3 161.6 62.6 61.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161.6 62.3 161.3 161	1841140110801084104	ALICNMENTS US/08093383 Perman A. Pertor H. DNA for Expression of Bowine G 30 30 30 30 31 30 30 31 30 30 31 30 31 30 30 31 30 31 30 31 30 30 31 30 30 30 30 30 30 30 30 30 30 30 30 30
	164.5 9 164.5 164.6 11.64.6 11.64.6 11.69.5 11.59.5	ACCOLT 1 US-08-093-383-1 US-08-093-383-1 SEQUENCE 1, APPLICANT APPLICANT: HEYNEWER, APPLICANT: HEYNEWER, APPLICANT: SECONTY TITLE OF INVENTION: NUMBER OF SEQUENCES: CORRESPONDENCE ADDRESSE: CORRESPONDENCE ADDRESSE: CONTY: STREET: GENERAL STREET: GENERAL TITLE OF INVENTION: NUMBER OF SEQUENCES: CONTYER: California CITY: South San FY STATE: California COUNTRY: USA ZIP: 94080 COMPUTER REARABLE FOR MEDITION OS SYSTEM: SOFTWARE: DATIN (MEBER FILING DATE: 14-01 CHARNY APPLICATION UNBERR FILING DATE: 14-01 CHASSIFICATION UNBERR FILING DATE: 14-01 CHASSIFICATION UNBERR FILING DATE: 18-08 REFERENCE/DOCKET NI TELEPHONE: 415-222 REFERENCE/DOCKET NI TELEPHONE: 415-222 TELEPHONE: 415-222 TELEPHONE: 415-222 TELEPHONE: 415-222 TELEPHONE: 19-03 TELEPASTION IN TORRESPONDENT TELEPASTICATION IN TORRESPONDENT TELEPASTICATION IN TORRESPONDENT TELEPASTI

```
MOLECULE TYPE: protein US-08-459-906-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 4
US-08-459-906-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        큡
                                                                                                                                                                                                                                                                                                                                    APPLICANT: Glazaran, Martha Guerrero
APPLICANT: Saldana, Hugo l'arrera
APPLICANT: Saldana, Hugo l'arrera
APPLICANT: Saldana, Hugo l'arrera
APPLICANT: Saldana, Hugo l'arrera
APPLICANT: Saldana, Hugo l'ase Maria Viader
TITLE DE INVENTION: Genétically Modifical de l'arrera
TITLE DE INVENTION: Production and Secreti of the Boman Growth Bormone
FILE REFRENCE: 18-9, 601 0050
CURRENT APPLICATION NUMBER: 0S/09/244.878
PRIOR APPLICATION NUMBER: PCT/MA97/00033
PRIOR FILING DATE: 1997-10-24
                                                                                                      ·.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: Stabilization of So. otropins And Other TITLE OF INVENTION: Proteins By Modific fon Of Cysteine Residues
                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                           | FPTIPLSKLEDNAMLRAHKLHQUAFOTYQEFEEAY!PKEQKYSFLQNP 48
                                                              Length 192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 191:
                                                                                                                                        1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLONP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYUFFEEAYIPKEGKYSFLONP
                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/383,621
FILLING DATE: 06-FEB-1995
                                         100.0%; Score 260; JR 1; Conservative 0: Mismatchine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98.1%; Score 255; DB 4; 1
100.0%; Pred, No. 2.46-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dr. Estelle J. Tsevdos
1937 West Main Street, P.O. Box 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Daley, Michael J.
APPLICANT: Buckwalter, Brian L.
APPLICANT: Gady, Susan M.
APPLICANT: Shieh, Hong-Minq
APPLICANT: Bohlen, Peter
APPLICANT: Seddon, Andrew P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-884 621-4
: Sequence 4, Application US/08383623
: Patent No. 5951972
                                                                                                                                                                                                                                                                              Sequence 5, Application US/09284878
Patent No. 6342375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 9
SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          48: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Connecticut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OPERATING SYSTEM:
TOPOLOGY: linear
                                                          Query Match
Best Local Similarity
Matches 49; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06904-0060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ":TY: Stamford
                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 191
          US-08-093-383-1
                                                                                                                                                                                                                                                             US-09-284 878-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-284-878-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE:
SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matchis
                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: Stabilization of Sommatotropins and Other TITLE OF INVENTION: Proteins by Modification of Cysteine Residues NUMBER OF SEQUENCES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYTFKEOKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98.18: Score 255, DB Z; Lenath 194;
106.0%; Prod. No. 2.5e 29;
ive 6; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: 1BM PC compatible
OPERATING SYSTEM: PC-DOS/MS-INUS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E: American Cyanamid Company
One Cyanamid Plaza
                                                                                                                  NAME: TSevdos, Estelle J.
REGISTRATION NUMBER: 31,145
REFERENCE/DOCKET NUMBER: 31,278.01
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/766.142
FILING DATE: 25-SEP-1991
ATTORNEY/AGENT INFORMATION:
NAME: TSEVGOS, ESTE: B. J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/08/459,906
FILING DATE: 02-JGN-1995
CLASSIFICATION: 5:4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 4, Application US/08459406
Patent No. 6010999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
APPLICANT: Daley, Michael J.
APPLICANT: Buckwalter, Brian ...
APPLICANT: Cady, Susan M.
APPLICANT: Shieh, Hong-Ming
                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
TELEPHONE: 203-321-2756
TELEFAX: 203-321-2971
TELEX: 203-710-474-4059
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTER:STICS:
LENGTH: 194 amino acids
TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Webster, Darry; L. REGISTRATION NUMBER: 34,276 REFERENCE/DOCKET NUMBER: 31, TELECOMMUNICATION INFORMATION: 201-831-3247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Seddon, Andrew P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21P: 07470-8426
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Onery Match
Best Local Similarity 196.00
Watches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 194 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Bohlen, Peter
APPLICANT: Seddon, Andrew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   201-831-3305
                                                                                                                                                                                                                                                                                                                                                                     TOPGLOGY: linear
MCLEGULE TYPE: protein
US-08-183-621-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET: One Cyanami
CITY: Wayne
STATE: New Jersey
COUNIEY: U.S.A.
ZIP: 07470-8426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
```

ö

```
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                             STREET: P.O. B
CITY: Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY: Houston
                                                                                                                                                                                                                      Texas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                                                                                                                                        77210
                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-784-582-10
                                          APPLICANT:
APPLICANT:
                          APPLICANT:
                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGIH:
                                                                                                                                                                                                                      STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                          0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                          Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                          0
                                                                                                                                                                                                                                                                                                                         APPLICANT: Clark, Samuel A.
APPLICANT: Thippen, Anice E.
APPLICANT: Usade, Christian
APPLICANT: Krisse, Fred
TITLE OF INVENTION: Accompinant Expression of Provins From
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLÖNP 49
                                                                                              4 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 FPTIPLSRLFONAMLRAHRLHQLAFUTYGEFFGAYIPKEQKYSFLONP 49
  Length 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98.1%; Score 255; DB 3; Length 217; 100.0%; Pred. No. 2.9e-29;
                                        0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OPERATING SYSTEM: PC_DOS/MS DOS
SOFTWAME: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
Ouery Match 98.1%; Score 255; DB 3; I
Best Local Similarity 100.0%; Pred. No. 2.5e-29;
Matches 48; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: Highlander, Steven L.
KEGISTRATION NUMBER: 47.642
REFERENCE/LOCKET NUMBER: UTSD:426\HYL.
TELECOMMUNICATION INFORMATION:
TELEPAN: (512) 418-3000
TELEFAN: (512) 418-3707
INFORMATION FOR SEQ 1D NO: 10:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                  APPLICANT: Newgard, Christopher B.
APPLICANT: Halban, Philippe
APPLICANT: No. 6087129mington, Karl D.
APPLICANT: Clark, Samuel A.
APPLICANT: Thigpen, Anice E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Halban, Philippe A.
No. 6110707mington, Karl D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/08/589,028 FILING DATE: Concurrently Herewith
                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEUBENCES: 50
CORRESPONDENCE ADDRESS:
ANDRESSEE: Arnold, White & Durkee
STREET: P. O. BOX 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 10, Application US/08784582
Patent No. 6110707
GENERAL INFORMATION:
APPLICANT: Newgard, Christopher B. APPLICANT: Habban, Philippe A. APPLICANT: No. 6110707mington, Kar
                                                                                                                                                                                                              Sequence 10, Application US/08589028 Patent No. 6087129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC COMPATIBLE UPERATING SYSTEM: PC-DOS/MS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 77210-4433
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     217 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 6
US-08-784-582-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-589-028-10
                                                                                                                                                                                       US-08-589-028-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGIH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                           RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                            ò
                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                          APPLICANT: McGarry, Dennis
TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
TITLE OF INVENTION: SECRETORY CELL LINES
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM TITLE OF INVENTION: SECRETORY CELL LINES NUMBER OF SEQUENCES: 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/64/784,582 FT.ING DATE: Concurrently Herewith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 98.1%; Score 255; DB 3; I
Best Local Similarity 100.0%; Pred. No. 2.9e-29;
Matches 48; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Newgard, Christopher B. APPLICANT: Halban, Philippe A. APPLICANT: No. 6194176mington, Karl D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 35 60/028,427 FILING DATE: 15-0C1-1996 PRIOR APPLICATION GATA: APPLICATION NUMBER: US 08 389,028 FILING DATE: 19-JAN-1996 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                     Arnold, White & Durkee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Arnold, White & Durkee STREET: P.O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 UTSD:514
                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-785-271-10
Sequence 10. Application US/08785271
Patent No. 6194176
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REGISTRATION NUMBER 37,642
REPERENCE/DOCKET NUMBER: UTS
TELECOMMUNICATION INFORMATION:
TELEPHONE: $12/418.3000
TELEPRA: $12/418.3000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Highlander, Steven L.
Clark, Samuel A.
Thigpen, Anice E.
Ouaade, Christian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Clark, Samuel A. APPLICANT: Thippen, Anice E. APPLICANT: Oudadd, Christian APPLICANT: Kruse, Fred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: 512/474-7577 INFORMATION FOR SEQ ID NO: 10:
                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            217 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                       P.O. Box 4433
                                                                      Kruse, Fred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
```

ö

```
APPLICANT: Oldzaran, Martha Guerrero
APPLICANT: Saldana, Huqo Barrera
APPLICANT: Saldana, Huqo Barrera
APPLICANT: Saldana, Huqo Barrera
APPLICANT: Saldana, Huqo Barrera
TTTLE OF INVENTION: Genetically Widditied Methylotrophic P. pastoris Yeast for the
TITLE OF INVENTION: Production and Serretion of the Human Growth Hormone
FILLE REPERENCE: 1829.0310000
CURRENT APPLICATION NUMBER: US/09/284,87H
PRIOR FILING DATE: 1999-07-21
PRIOR APPLICATION NUMBER: PCT/MX97/0003;
NUMBER OF SEO ID NOS: 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 FPTIPLSRLFONAMLRAHKLHQLAFDIYQEFEEAYIPKEQKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27 FPT.PLSRLFDNAMI.RAHRLHQI.AFDTYQEFEEAY.PFEQKYSFLONP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYOEFEEAYIPKEOKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27 FPT1PLSRLFDNAMLRAHRLHQLAFDTYQEFEEAY1PKEQKYSFLCNP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 255; DB 4; Length 217;
Pred. No. 2.9e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCALTON: 192,210
OTHER INFORMATION: Znote "The peptides above are
OTHER INFORMATION: depicted in Figure 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.9e-29;
hes 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.9e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match 98.1%; Score 255; DB 4; Best Local Similarity 100.6%; Pred. No. 2.9e-29 Matches 48; Conservative 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 25, Application US/09424620B
Patent No. 6391S85
GENERAL INFORMATION:
APPLICANT: HANIL SYNTHETIC FIBER CO., LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98.1%; Sco. No. 2.
100.0%; Pred. No. 2.
1.2. 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1, Application US/09284878 Patent No. 6342375
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-852-9196
TELEFAX: 415-496-1200
                                         TELEFAX: 415-496-1200
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 217 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 100.
Matches 48: Conservative
                                                                                                                                                                  TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                                STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                 Peptide
94..115
                                                                                                                                                                                                                                                                                                                                                                Pept ide
                                                                                                                                                                                                                                                                                                                                                                                                                             Pepit ide-
                                                                                                                               TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                   NAME/KEY:
                                                                                                                                                                                                                                                                                                 NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US 09-424-620B-25
                                                                                                                                                                                                                                                                                                                                                              NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                         NAMEZKEY:
LOCAT FON:
                                                                                                                                                                                                                                                       LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                    LOCAL INN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US 08-759-628 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGIH: 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-284-878-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US - 09 - 284 - 878 - 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEO ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                             FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE:
```

```
0
                          MCGarry, Dennis
VENTION: RECOMMINANT EXPRESSION OF PROTEINS FROM
VENTION: SECRETS BY CELL LINES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27 EPTIPISRLE NAMLRAHRLHOLAFDTYQEFEEAYIPKEGKYSFLQNP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 FPTIPLSRLFUNAMLRAHRLHOLAFOTYOFFERAYIPKEOKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98.1%; Score 255; DB 3; Length 274; 100.0%; Pred. No. 3.8e-29; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: 1BM PCC COMPATIBLE
COMPUTER: 1BM PCC COMPATIBLE
OPERATING SYSIEM: PC-DOS/MS-DOS
SOFTAME: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/784,582
FILING DATE: Concurrently Herewith
CLASSITCATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/U28,427
FILING DATE: 15-OCT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/U28,427
FILING DATE: 15-OCT-1996
ATTOMING NUMBER: US 08/589,028
FILING DATE: 19-JAN-1996
ATTOMING DATE: 18-ORMATION:
                                                                                                                                                                                                                                                                               APPLICANT: Halban, Philippe A.
APPLICANT: No. 6110707minqton, Karl D.
APPLICANT: Clark, Samuel A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Arnold, White & Durkee
STREET: P.O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          UTSD: 514
                                                                                                                                                                                                                                                       APPLICANT: Newgard, Christopher B.
                                                                                                                                                                                        Sequence 71, Application US/08784582
Patent No. 6110707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-784-582-73
; Sequence 73, Application US/08784582
; Patent No. 6110707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Highlander, Steven L. REGISTRATION NUMBER: 37,642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: UT
TELECOMMUNICATION INFORMATION:
TELEPHONE: 512/418-3000
                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Thigpen, Anice E. APPLICANT: Quaade, Christian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 512/474-7577
INFORMATION FOR SEQ 1D NO: 71:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 274 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match
Best Local Similarity 100.0
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                               Kruse, Fred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Texas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    77210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                              US-08-784-582-71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-784-582-71
                                                                                                                                                                                                                                                                                                                                                                                               APPL: CANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 13
                                                                                                                                           RESULT 12
                                                                   qu
                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                   INVENTION: Process for pre-aring recombinant proteins using highly efficient expression vector from Sacharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Sato, Seiji
APPLICANT: Sato, Seiji
APPLICANT: Kudo, Toshiyuki
APPLICANT: Kudo, Toshiyuki
APPLICANT: Kondo, Toshiyuki
APPLICANT: Kondo, Masaaki
TITLE OF INVENTION: DNAS ENCODING NEW FUSION PROTEINS AND PROCESSES FOR
TITLE OF INVENTION: PREPARING USEFUL POLYPEPTIDES THROUGH EXPRESSION OF THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION: Description of Artificial Sequence: Designated is OTHER INFORMATION: an amino acid Sequence of MWPSp-MWPmp20-TEV-G-GH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 241:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90.1%; Score 255; DB 4; Length 245; 100.0%; Pred. No. 3.3e-29; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                        STATE: Connecticut.
COUNTRY: U.S.A.
ZIP: 06510-2802
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.5 inch, 1.44 ML storase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match
98.1%; Score 255; DB 4;
Best Local Similarity 100.0%; Pred. No. 3.3e-29;
Matches 48; Conservative 6; Mismatches 9;
                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
AJDRESSEE: BACHMAN & LAPOINTE, P.C.
STREET: Suite 1201, 900 Chapel Street.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: MS WORD
CURRENT APPLICATION CATA:
APPLICATION NORBER: US/09/424, FOR FILING DATE: 24-00. 6391585 1999
INFORMATION FOR SEQ ID NO: 25:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURKENI FILING DATE: 1999-03-26
EARLIER APPLICATION NUMBER: JP10-8733/1998
EARLIER FILING IDATE: 1998-03-31
NUMHER OF SEQ ID NOS: 66
SOFTWARE: PATENTIN Ver. 2.0
SEQ ID NO 66
LENGIH: 245
                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM
OFERATING SYSTEM: WINDOWS 95/98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: linear
MOLECULE TYPE: PROTEIN
SEQUENCE DESCRIPTION: SEQ ID NO: 25:
US-09-424-620R-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILE REFERENCE: 382,1026
CURRENT APPLICATION NUMBER: US/09/280,030A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 66, Application US/09280030A Patent No. 6506595
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 241 amino acids
                                                                                                              SEONG, Baik-Lin
JANG. Ki-Ryong
MOON, Jae-Woong
                                           BAE, Cheon-Soon
                                                              YANG, Doo-Suk
LEE, Jee-Won
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 100.0
Matches 48; Conservative
                                                                                                                                                                                                                                                                          CITY: New Haven
                                                                                                                                                                                 NUMBER OF SEQUENCES:
                                                                                                                                      TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99 080 087-60-SD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99-010-087-60-SD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESUL: 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
```

.; 0

Gaps

```
TELEFAX: 201-994-1744
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AITORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 217 AMINO ACIDS
TYPE: AMINO ACID
                                                                                            Ouery Match
Best Local Similarity 97.9%
Warches 47; Conservalive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 97.9%
Harches 47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: ROSEN, EL AL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: January
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: LINEAR MOLECULE TYPE: PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM: MEDIUM TYPE: 3.5 INC
                       TYPE: PRT
ORGANISM: homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: ROSELAND
STATE: NEW JERSEY
COUNTRY: USA
ZIP: 07068
                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE
                                                                                                                                                                                                                                                                                                               US-08-187-756C-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-187-756C-4
                                                                US-09-465-461-1
    LENGTH: 191
                                                                                                                                                                                      οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: CHAPPEL, SCOLL
TITLE OF INVENTION: Human Growth Hormone to stimulate hematopoiesis and immune recons
TITLE OF INVENTION: after hematopoietic stem cell transplantation in humans
FILE OF THEFERENCE: CHAPPEL-6.1
CURRENT APPLICATION NUMBER: US/09/465,46;
CURRENT APPLICATION NUMBER: US/09/12-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                          TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM TITLE OF INVENTION: SECRETORY CELL LINES NUMBER OF SEQUENCES: 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 FPTIPLSRLFONAMLRAHRLHQLAFDTYGEFEEAYIPKEQKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27 FPTTPLSRLEDNAMLRAHRCHOLAFOTYGEFEI "PKEOKYSFLONP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98.1%; Score 255; DB 3; Length 360; ilarity 100.0%; Pred. No. 5.4e-29; Conservative 0; Mismarches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: Patentin Release #1.0, Version #1.40 CURRENT APPLICATION DATA: APPLICATION NOTE: US/08/784.562 FILING DATE: Concurrently Herewith CLASSIFICATION: 435
                 Halban, Philippe A.
No. 6110707mington, Karl D.
                                                                                                                                                                                                                                          E: Arnold, White & Durkee P.O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/028,427
FILING DATE: 15-OCT-1996
PRICH APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 08/589,028
FILING DATE: 19-JAN-1996
ATIORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              UTSD:514
                                                                                                                                                                                                                                                                                                                                                                                        MEDIUM TYPE: Floppy disk
COMPUIEK: JHM PC compatille
OPERATING SYSTEM: PC DOS/MS:10:S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRICH APPLICATION NUMBER: 60/112,668
PRICH FILING DATE: 1998-12-17
NUMBER OF SEQ 1D NOS: 1
SOFTWAKE: PatentIn version 3.1
SEQ 1D NO 1
Newgard, Christopher B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Sequence 1, Application US/09465461; Patent No. 6348444; GENEMAL, INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    37,642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Highlander Steven L. REGISTRATION NUMBER: 37-642 REFERENCE/DOCKET NUMBER: UTELECOMMUNICATION INPORMATION:
                                                                           Thigpen, Anice E.
Quaade, Christian
Kruse, Fred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 512/474-7577
INFORMATION FOR SEQ 10 NO: 73:
SEQUENCE CHARACTERISTICS:
                                                            Clark, Samuel A.
                                                                                                                                         McGarry, Dennis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     512/418-3000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360 amino acids
                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
es 48; Conserv
                                                                                                                                                                                                                                                                                       Houston
                                                                                                                                                                                                                                                                                                               Texas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                 77210
                                                                                                                                                                                                                                              ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TOPOLOGY:
US-08-784-582-73
                                                                             APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                              COUNTRY:
APPLICANT:
                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-465-461-1
                                                          APPLICANT:
                                                                                                                                                                                                                                                               STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGIH
                                                                                                                                                                                                                                                                                                      STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 14
```

```
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ·.
                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                            ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                          2 FPT1PLSRLFUNAMLRAHRLHQLAFDTYGEFERAY:PKEQKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 249; DB 4; Length 191;
Pred. No. 1.8e-28;
0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                95.8%; Score 249; DB 1; Length 217; 97.9%; Pred; No. 2.16-24; Live 0; Mismatches 1; Indels
                                                                                  2 FPTIPLSKLFUNAMLRAHRLHQLAFDTYGEFERAYIPKEGKYSFLONP
                                                                                                                                                                                                                                                                                                    TITE OF INVENTION: GOMEST GROWTH RETHOLDS NUMBER OF SECTEMBER: 7 CORRESPONDENCE ALDHESS: 7 ADDRESSEE: CRELLA, BYRNE, HAIN, GILFILLAN, ADDRESSEE: CECCHI, STEMART 6 OLSTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Search completed: September 15, 2003, 12:05:30 Job time : 12.2401 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OPERATING SYSTEM: MS-DOS
SOFTWARE: WAND PREFECT 5.1
CURRENT APPLICATION JAIA:
APPLICATION NUMBER: US/08/187,756C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36,134
3R: 325800-55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDIUM TYPE: 8.5 INCH DISKETTE COMPUTER: 1BM PS/2 COPERATING SYSTEM: MS-DGS COPERATION
                                                                                                                                                                                                                          Sequence 4. Application US/081877560 Patent No. 5597709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          January 27, 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: FERRARO, GREGORY D. REGISTRATION NUMBER: 36,134 REFERENCE/DOCKET NUMBER: 32 TELECOMMUNICATION INFORMATION: 201-994-1700
                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 6 BECKER FARM ROAD CITY: ROSELAND
  95.8%;
```

```
Sequence 23, Appl
Sequence 1, Appl
Sequence 1, Appl
Sequence 1, Appl
Sequence 6, Appl
Sequence 6, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 2, Appli
Sequence 4, Appli
Sequence 16, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Appl i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1, Appl.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 4, Appli
                                                                                    September 15, 2003, 12:03:35; Search time 20.5484 Seconds (without alignments) 347.945 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. is the number of results producted by chance to have a score greater than or equal to the second the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 9, #
Sequence 66,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Description
                                                                                                                                                                          1 MF TIPLSRLFDNAMLKAHR.....QEFERAYIPKEOKYSFLQNP
                                                                                                                                                                                                                                                                                                                                                                                                                             Cgn2_6/ptodata/1/pubpaa/US07_PIBCOMB.Pcp:*

Cgn2_6/ptodata/1/pubpaa/US07_PIBCOMB.Pcp:*

Cgn2_6/ptodata/1/pubpaa/US02_EMB__UUB__pep:*

Cgn2_6/ptodata/1/pubpaa/US02_EPUBCOMB.Pcp:*

CGn2_6/ptodata/1/pubpaa/US03_EPUBCOMB.Pcp:*

CGn2_6/ptodata/1/pubpaa/US03_USG_PUBCOMB.Pcp:*

CGn2_6/ptodata/1/pubpaa/US03_USW_PUBC.Pcp:*

CGn2_6/ptodata/1/pubpaa/US03_USW_PUBC.Pcp:*

CGn2_6/ptodata/1/pubpaa/US03_USW_PUBC.Pcp:*

CGn2_6/ptodata/1/pubpaa/US03_USW_PUBC.Pcp:*

CGn2_6/ptodata/1/pubpaa/US03_USW_PUBC.Pcp:*

CGn2_6/ptodata/1/pubpaa/US03_USW_PUBC.Pcp:*
               ompugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-969-'48C-4
US-09-804-409A-16
                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parametris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-853-688-4
                                                                                                                                                                                                                                                    541936 seqs, 14591z426 residues
GenCore version
Copyright (c) 1993 - 2003
                                                                                                                                                                                                                                                                                                                                                                                                                     Published_Applications AA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUMMARIE
                                                           OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                         Listing first 45 summaries
                                                                                                                                                                                                                      Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                          Maximum Match 100%
                                                                                                                                                                                                                                                                                                                             length: 2000000000
                                                                                                                                                                                                                                                                                                                                                         Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12 10 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match Length DB
                                                                                                                                                 US-09-423-100-1
                                                                                                                                                                                                                                                                                                                 Minimum DB seq length: 0
                                                                                                                                                                                                           BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       900.0
98.1
98.1
98.1
98.1
98.1
998.1
998.1
998.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10:
11:
12:
13:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.
                                                                                                                                                               260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14:
15:
16:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 8:
                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Maximum DB seq
                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                     Database :
                                                                                                                                                                               Sequence:
                                                                                                                                                                                                                                                     Searched:
                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š.
```

Sequence 12, Appl Sequence 3, Appli Sequence 350, Appl Sequence 2, Appli Sequence 411, Appli	Sequence 18, Appl Sequence 14, Appl Sequence 2, Appl Sequence 2, Appl Sequence 3, Appli Sequence 4, Appli	Sequence 7, Appli Sequence 6, Appli Sequence 22, Appl Sequence 19, Appl	Sequence 1, Appl. Sequence 15, Appl. Sequence 15, Appl. Sequence 32, Appl. Sequence 33, Appl. Sequence 51, Appl.	Sequence 63, Appl Sequence 63, Appl Sequence 25, Appl Sequence 27, Appl Sequence 23, Appl Sequence 22, Appl Sequence 23, Appl Sequence 23, Appl Sequence 23, Appl
12 US-09-824-200-12 3 US-09-850-887-3 15 US-10 043-487-350 12 US-10-153-207-2 15 US-10-103-313-411		9 US-09-876-478-7 9 US-09-876-478-6 15 US-10-191-879-22 15 US-10-191-879-19		5 5 10 100 679 621 622 623
191 217 163 191 191	1946 1900 1900 1900 1900 1900 1900 1900 190	0.0.71717		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
91.9 76.5 75.8 75.8 75.8	612.3 61.3 64.6 643.8 8.8	44 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	2	25
239 199 197 197	188 159.5 142 114 114	106 106 88 88 88	. 20 22 22 20 20 20 20 20 20 20 20 20 20	72.5 72.5 72.5 72.5 70 70
16 17 18 19 20	2 2 2 3 2 1 2 2 3 2 4 3 2 4 3 2 4 3 3 2 4 3 3 2 4 3 3 2 4 3 3 2 4 3 4 3	228 2088 1000 1000	, w w w w w w w w w w w w w w w w w w w	. W W 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4

ALIGNMENTS

```
TITLE OF INVENTION: Chimeric Protein Containing an Intramolecular Chaperone-Like Sequence
                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLD FORM:
MEDIUM TYPE: FLOPPY disk
COMPUTER: HOW PC compatible
COMPUTER: 1BM PC compatible
COMPUTER: DATE: PC.DGS/MS-DGS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRING APPLICATION DATE: 22-Jan-2002
FILING DATE: 22-Jan-2002
CLASSIFICATION: CURROWN>
                                                                                                                                                                                                                  CORRESPONDENCE ALDRESS:
ADDRESSEE: Townsend and Townsend and Grew LLP
STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: 020167-000130US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: WO FGT/CN98/00052
FILINS DATE: 31-MAR-1998
APPLICATION NUMBER: US 09/423,100
FILING DATE: 11-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,946
                              Sequence 1, Application US/15054673
Publication No. US20020164712A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                 GENERAL INFORMATION:
APPLICANT: Gan, Zhong Ru
                                                                                                                                                                                                                                                                                                   CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                               STATE: California
                                                                                                                                                                                              NUMBER OF SECUENCES: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                        COUNTRY: USA
US-10-054-873-1
```

LENGTH: 49 amino acids

TYPE: amino acid

```
STATE: California
COUNTRY: USA
ZIP: 9411-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 7, Application US/10654873
Publication No. US20020164712A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 167 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
      APPLICANT: Gan, Zhong Ru
                                                                                                                                                         CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: California
COUNTRY: USA
21P: 94111-3834
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                  FRICE APPLICATION DATA:
                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEQ ID NO:
                                                                     NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US: 10:054-873-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-054 873-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ें
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
O
                                                                                                                                                                         Ö
                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sdet
                                                                                                                                                                      .:
O
                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Gan, Zhong ku
TITLE DE INVENTION: Chimeric Protein Containing an
Intramolecular Chaperone-Like Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                1 MEPTIPLSRLEDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQFF.::AAY;PKEQKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.0%; Score 260; DR 14; Length 49; Best Locai Similarity 100.0%; Pred. No. 5.6e-28; Matches 49; Conservative 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 14; Length 92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUFTWARE: Patentin Release #1.6, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
CORRESPONDENCE TOWNS and TOWNS and Grew LLP
STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 620167 + 10130US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 260; 08.14;
100.0%; Pred. No. 1 26-27;
iive 0; Mismatche, 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: WO PCT/CN98 0052
FILING DATE: 31-MAR-1998
APPLICATION NUMBER: US 09/423,100
FILING DATE: 11-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/054,873
FILING DATE: 22-Jan-2002
CLASSIFICATION: <union-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-DOS/MS-(x)S
: TOPOLOGY: linear
: MOLECULE TYPE: protein
: SEQUENCE DESCRIPTION: SEQ ID NO: 1: US-10-054-873-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE DESCRIPTION: SEQ 1D NO: 2:
US-10-054-873-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 6, Application US/10054873 Publication No. US20020164712A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                           Sequence 2. Application US/10054873 Publication No. US26026164712A:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS: < Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 92 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MODECOLE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ouery Match
Best Local Similarity 100.0
Matches 49. Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: cmino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY: USA
ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: Gar.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-054-873-6
                                                                                                                                                                                                                                                                                                                                         US-10-054-873-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                               ò
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Chimeric Protein Containing an Intramolecular Chaperone-Like Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MFPTIPLSRLFONAMLRAHRLHQLAFDTYGEFERAY; PKEGKYSFLONP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: 1HM PC compatible OPERATING SYSTEM: PC DOS/MS-DOS SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                               OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
                                                                                             ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: Two Embarcadero Center, Eigsth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKST NUMBER: 020167-0601300S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match 100.0%; Score 260; DB 14; Best Local Similarity 100.0%; Pred. No. 1.4e-27; Matches 49; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: WO ECT/CN96/0052
FILLING DATE: 11-AME-1998
APPLICATION NUMBER: US 09/423,100
FILLING DATE: 11-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: CS/10/054,873
FILLING DATE: 22 Jan. 2602
CLASSIFICATION: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/10/054,873
FILING DATE: 22-Jan-2002
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,945
                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC compatible
```

.; 0

```
191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-400-377-1
                                                                                                                       US-10-153-207-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CN OI ÖSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 7
          ò
                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       â
                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
ADORESSEE: FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP
STREET: 1300 I Street, NW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Ballance, David James
TITLE OF INVENTION: RECOMBINANT FUSION PROTEINS TO GROWIH HORMONE
AND SERUM ALRUMIN
                                                                                                                                                                                                                                                                                                                                                                                                                      Silve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                  Ö
                                                                                                                                                                                                                                                                                                                                                                         100.0%; Shore 260; DR [4] Inhath [50; 100.0%; Pred, No. 2.1e 27; Live 0: Mismatches 0; Indels 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: FLORPY disk
COMPUTER: IBM PC COMPATIBLE
COMPUTER: TBM PC COMPATIBLE
COPFINATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30 (EPO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MEPTIPLSRLFDNAMLRAHRLHQLAFDTYGEFEEAYIPKEQKYSFLGNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98.1%; Score 255; DB 11; Length 191; 100.0%; Pred. No. 1.3e-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                     REFERENCE/DOCKET NUMBER: 020167-000130US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                  APPLICATION NUMBER: WO PCT/CN98/00052
FILING DATE: 31-MAR-1998
APPLICATION NUMBER: US 09/423,100
FILING DATE: 11-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 09/091.873
FILING IMTE: 25-JUN-1998
APPLICATION NUMBER: PCT/GB96/03164
FILING IMTE: 19-DEC-1996
INFORMATION FOR SEQ ID NO: 23:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/09/984,010
FILING DATE: 21-May-2002
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; SEQUENCE DESCRIPTION: SEQ ID NO: 23: US-09-984-010-23
                                                                                                                                                                                                                                                          ; TOPOLOGY: linear
; MOLECULE TYPE: protein
; SEQUENCE DESCRIPTION: SEQ ID NO: 7:
US-10-054-873-7
                                                                                                                   NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 23, Application US/09984010 Publication No. US20030104578A1
                                                                                                                                                                                                                 LENGTH: 150 amino acids
                                                                                                                                                                                                                                   TYPE: amino acid
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 191 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IYPE: amino acid
STRANDEDNESS: <Unknown>
                                                                                                ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                          INFORMATION FOR SEQ ID NO: 7: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES: 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear
MOLECULE TYPE: protein
HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 100.07
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: USA
ZIP: 20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 48; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ANT I - SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-984-010-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
```

```
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Cox III. George N
APPLICANT: Cox III. George N
APPLICANT: Bolder Biotechnology, Inc.
TITLE OF INVENTION: Derivativ: 3 of Growth Hormone and Related Proteins
FILE REPERENCE: 4152-1-PUS
CORRENT APPLICATION NUMBER: 05/09/462,941
PRIOR APPLICATION NUMBER: 05/09/462,941
PRIOR APPLICATION NUMBER: 05/09/462,941
PRIOR APPLICATION NUMBER: 06/052516
PRIOR FILING DATE: 2005-01-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98.1%; Score 255; DB 12; Length 191; 100.0%; Pred, No. 1.3e-26; ive 0; Mismatches 0; Indels C
                              2 FPTIPLSRLFUNAMIRAHRIHQIAFDTYQFFEEAYIPKEQKYSFLUNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 FPT:PLSRLFDNAMLRAHRLHQLAFDTYOEFEEAYIPKEGKYSFLONP 48
2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match 98.1%; Score 255; DB 12; Length 191; Best Local Similarity 100.0%; Pred. No. 1.3e·26; Matches 48; Conservative 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLONP 49
                                                                                                                                                                                                                                                                                APPLICANT: James A. Wells
APPLICANT: Brian C. Cunningham
TITLE OF INVENTION: GROWTH HORMONE VARIANTS
FILE REFERENCE: 669.12-US-C7
CURRENT APPLICATION NUMBER: US/10/153.207
CURRENT FILING DATE: 2002-05-22
PHIOR APPLICATION NUMBER: 08/479,884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR FILLING DATE: 1995-06 07 PRIOR PELLOR DATE: 1995-06 07 PRIOR FILLING DATE: 1992 10-13 PRIOR PELLOR DATE: 1992 04-27 PRIOR FILLING DATE: 1998-06 PRIOR APPLICATION NUMBER: 07/428,066 PRIOR APPLICATION NUMBER: 07/264,611 PRIOR PILLING DATE: 1989-10-26 PRIOR PILLING DATE: 1988-10-26
                                                                                                                                                                                              ; Sequence 1, Application US/10153207
; Publication No. US/20030153003Al
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1, Application US/10400377 Publication No. US/20030162949A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Guery Match
Best Local Similarity 100.0
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS: 41
SOFTWARE: Patentin Ver. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; ORGANISM: Homo sapiens
US-10-400-377-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Home Sapiens
US-10-153-207-1
```

a

```
GENERAL INFORMATION:
APPLICANT: Kordyum, Vitaliy A.
APPLICANT: Chernykh, Svitlana 1.
APPLICANT: Slavchenko, Iryna Yu.
APPLICANT: Vozianov, Oleksandr
TITLE OF INVENTION: PHAGE-DEPENDENT SUPER PRODUCTION OF
TITLE OF INVENTION: BIOLOGICALLY ACTIVE PROTEIN AND PEFTIDES
FILE REFERENCE: PHAGE.0064
           24 FPIIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 98.1%; Score 255; DB 9; L
Bost Local Similarity 100.0%; Pred. No. 1.5e-26;
Matches 48; Conservative ); Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/929,918
CURRENT FILING DATE: 2001-08-15
PRIOR APPLICATION NUMBER: 09/314,288
PRIOR DATE: 1409-05-25
NUMBER: JESEQ 10 NOS-11
SOFTWARE: FASISEQ 10F WILLOWS VERSION: 4.0
                                                                                                                                            Sequence 9, Application US/09929918 Patent No. US20020090678A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 66
SOFTWAKE: Patentin Ver. 2.0
SEQ ID NO 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Homo sapiens
US-09-929-918-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-280-030-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-280-030-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 217
                                                                                                                  US-09-929-918-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEC 1D NO 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                APPLICANT: Cox III.

APPLICANT: Cox III.

APPLICANT: Bolder Biotechnology, inc.

TITLE OF INVENTION: Derivatives of Growth Hormone and Related Proteins
FILE REFERENCE: 4152-1-FUS

CURRENT APPLICATION NUMBER: US/10/400,708

CURRENT FILLING DATE: 2003-03-26

PRIOR FILLING DATE: 2000-01-14

PRIOR FILLING DATE: 2000-01-14

PRIOR FILLING INTE: 1997-97-14

NUMBER OF SEA ID NOS: 4:

SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYGEFREAYIPKEGKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 98.1%; Score 255; CH 12; Length 191; Best Local Similarity 100.0%; Pred. No. , 3e-26; Matches 48; Conservative 0; Mismatches 6; Indels 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 214;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 98.1%; Score 255; DB 12; Best Local Similarity 100.0%; Pred. No. 1.5e-26; Matches 48; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: James A. Wells
APPLICANT: Brian C. Cunningham
TITLE SEINVENTION: GROWTH HORMONE VARIANT:
FILE REFERENCE: 669.12 US.-C7
CURRENT APPLICATION NUMBER: US/10/153,267
CURRENT FILLING DATE: 1995-06-07
PRIOR APPLICATION NUMBER: 08/479,884
PRIOR APPLICATION NUMBER: 08/790,723
PRIOR APPLICATION NUMBER: 07/960,227
PRIOR APPLICATION NUMBER: 07/960,277
PRIOR APPLICATION NUMBER: 07/960,277
PRIOR FILLING DATE: 1992-10-13
PRIOR FILLING DATE: 1993-10-26
PRIOR APPLICATION NUMBER: 07/264,611
PRIOR APPLICATION NUMBER: 07/264,611
PRIOR APPLICATION NUMBER: 07/264,611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE, FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    : Sequence 6, Application US/10153207
; Publication No. US20030153003A1
; GENERAL INFORMATION:
                                                                                                                                                          ; Sequence 1, Application US/10400708
; Publication No. US20030166865A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : ORGANISM: Homo Sapiens
US-10-154-207-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 191
                                                                                                                                   US-10-400-708-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-400-708-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-154-207-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 1
```

o:

Gaps

0

Length 217; Indels

```
.;
0
                                                                                                                                                                                                                                                                                                                                                                                                                         THE
                                                                                                                                                                                                                                                                   APPLICANT: Bato, Serija
APPLICANT: Higashikuni, Naohiko
APPLICANT: Higashikuni, Naohiko
APPLICANT: Kado, Toshiyuki
APPLICANT: Kado, Toshiyuki
APPLICANT: Kado, Masaaki
TITLE OF INVENTION: DRASBARI
TITLE OF INVENTION: PREPRING USEFUL PULYPEPTINES THROUGH EXPRESSION OF TITLE OF INVENTION: DNAS
FILE REFERENCE: 382,1026
FILE REFERENCE: 382,1026
EARLIER APPLICATION NUMBER: US/09/280,034A
CURRENT FILING DATE: 1999-03-31
EARLIER APPLICATION NUMBER: JP10-87,35/1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: Description of Artificial Sequence: Designated is OTHER INFORMATION: an amino acid sequence of MMPSp-MMPFp20-TEV-6-GH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 FPTIPLSRLFONAMLRAHRLHOLAFOTYOFFEEAYIPKEOKYSFLONP 49
                             Ouery Match 98.1%; Score 255; DB 9; Length 245; Best Local Similarity 100.0%; Pred. No. 1.7e-26; Matches 48; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                            Sequence 66, Application US/0928303UA Patent No. US20010021515A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
```

2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49

S

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: CCOPEK, DAVID N.
APPLICANT: CFROTER, DAVID N.
APPLICANT: GREGORY, JOHNE M.
APPLICANT: MILLAR, DAVID S.
TITLE OF INVENTION: WETHOD FOR DETECTING GROWTH HORMONE VARIATIONS IN
TITLE OF INVENTION: HUMANS, THE VARIATIONS AND THEIR USES
FILE REFERENCE: WCM78
                                                                                         CERETAL INFORMATION:
APPLICANT: KIEFER, TIMOTHY J.
APPLICANT: KIEFER, TIMOTHY J.
APPLICANT: CHEUNG, ANTHONY T.
TITLE OF INVENTION: CMPOSITIONS AND METHODS FOR REGULATED PROTEIN
TITLE OF INVENTION: EXPRESSION IN GUT
FILLE REFERENCE: 029996/027 8721
CURRENT APPLICATION NUMBER: US/09/804.409A
CURRENT FILING DATE: 2001-03-12
NUMBER OF SEQ ID NOS: 18
SOFTWARE: PALENTIN Ver. 2.1
SEQ ID NO 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 248; DB 10; Length 217;
Pred, No. 1.36:25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27 FPTTPLSRPEDNAMLRAHRIHOLAFDTYGEFERAYTPKEGKYSFLONP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27 FPT1PLSRLFDNASLRAHRLHQLAFDTYQEFGEAY1PKEQKYSFLQNP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Guery Matich 93.1%; Score 242; DB 9; Length 217; Best Local Similarity 95.8%; Pred. No. 8.6e 25; Matches 46; Conservative 0; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 FPTIPLSREPNAMLRAHRLHOLAFDTYQSFEEAYIPKEQKYSFLQNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 PPTIPLSRUFDNAMLRAHRLHQLAFDTYGEFEEAYIPKEQKYSFLQNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search completed: September 15, 2003, 12:23:35
Job Lime : 21.5484 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/853,688
CURRENT FILING DATE: 2001-05-14
NUMBER OF SEQ ID NOS: 66
SSCTWARE: Patentin Ver: 2.1
ESO ID NO 4
LENGTH: 217
        RESULT 14
US-09-3804-409A-16
Sequence 16, Application US/09804409A
; Patent No. US20020155100A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             // Sequence 4, Application 05/09853688
// Patent No. 0520020081605A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95.48;
97.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95.4%
Best Local Similarity 97.9%
Matches 47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; ORGANISM: Homo sapiens
US-09-853-688 4
                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-804-409A-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 15
US-09-853-688-4
                                                                                                                                                                                                                                                                                                                                                                                                                            SKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT ARIZEKE PHARMACEUTICALS, INC.
APPLICANT HOUSTON, Lou, L.
APPLICANT HOUSTON, Lou, L.
APPLICANT SHERIDAN, Philip, J.
APPLICANT SHERIDAN, Stephen
APPLICANT GLYNN, Jacqueline, M.
APPLICANT GRANDON AGENTS ACROSS CELLUL'R HARRIERS
FILE REPERENCE: 057220-0303
CURRENT APPLICATION NUMBER: US/09/969,748*
CURRENT FILING DATE: 2002-12-10
PRIOR FILING DATE: 2001-02-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ö,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                 APPLICANT: COOPER, DAVID N.
APPLICANT: COOPER, DAVID N.
APPLICANT: COOPER, DAVID N.
APPLICANT: GEGORY, JOHN
APPLICANT: GEGORY, JOHN
APPLICANT: MILLAN, DAVID S.
TITLE OF INVENTION: HUMANS, THE VARIATIONS AND THEIR USES
TITLE REFERENCE: WCAPP
CURRENT APPLICATION NUMBER: US/09/853,688
CURRENT FILING DATE: 2001-05-14
NUMBER OF SEQ ID NOS: 66
SOFTWARE: PATENTIN VET. 2.1
SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 FPTIPLSRLFDNAMLRAHRLHOLAFDTYOEFE: IPKEGKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 FPTIPLSKLFONAMLRAHKLHOLAFUTYÖFFEFAYIPKEOKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95.8%; Score 24.; DB 12; Length 217; 97.9%; Pred. No. 9.8e-26; tive 0; Mismatches 1; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95.8%; Scote 249; B 9; Length 217;
97.9%; Pred. No. 9.8e-26;
Live 0; Mismatches 1; Indols
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR FILING DATE: 2001 02 03 PRIOR FILING DATE: 2000-11-14
PRIOR FILING DATE: 2000-11-14
PRIOR APPLICATION NUMBER: US 60/248,478
PRIOR APPLICATION NUMBER: US 60/237,929
PRIOR FILING DATE: 2000-11-13
PRIOR FILING DATE: 2000-10-02
NUMBER OF SEQ 1D NOS: 115
SOFTWARE: Patentin version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; Sequence 4, Application US/09959748C; Publication No. US20030161809Al; GENERAL INFORMATION:
                                                   Sequence 2, Application US/09853688 Patent No. US20020081605A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 97.9
Matches 47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 97.9
Matches 47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : Homo sapiens
                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-969-748C-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-969-748C-4
RESULT 12
US-09-853-688-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 13
```

0

; 0

Tue Sep 16 08:22:50 2003

```
precu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             precu
precu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   - alp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               somatotropin 2 pre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   somatotropin 2 pre
chorionic somatoma
chorionic somatoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             somatotropin - Afr
somatotropin Arc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               precu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              precu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 scmatotropin precu
somatotropin - sei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           precu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         somatotropin 1 pre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  chorionic somatoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            precu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       choriomammotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                choriomammotropin
                                                                                                                                           (without alignments)
583.284 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                     September 15, 2003, 11:56:45; Search time 8.07885 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   somatotropin -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Description
                                                                                                                                                                                                                                                1 MFPTIPLSRLFUNAMLRAHR.....QEFEEAYIPKEOKYSFLQNP
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                           of hits satisfying chosen parameters;
                                                                                                                                                                                                                                                                                                                                                  283308 segs, 96168682 residuos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Maximum Match 100%
Listing first 45 summaries
                                                                                 OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STHUV2
167408
153267
167411
167409
A26449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E32435
STMS
PN0140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STH0
JK0219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JC4632
A37782
A61584
                                                                                                                                                                                                                                                                                                            Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 150429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          146145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B49159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  849483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JC1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A60625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A60509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIHUV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LCHUC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                     length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Minimum Match 0%
                                                                                                                                                                                              US-09-423-100-1
260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1: pirl:*
2: pir2:*
3: pir3:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pir4:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR_76:*
                                                                                                                                                                                                                                                                                                                                                                                                                                    length: 0
                                                                                                                                                                                                                                                                                        BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161.5
1560.5
1569.5
1569.5
1569.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
1566.5
156
                                                                                                                                                                                                                          Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         213
205
201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  150
                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                           Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Database :
                                                                                                                                                                                                                                                  Seguence:
                                                                                                                                                                                                                                                                                                                                                  Searched
                                                                                                                          Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Result
```

somatotropin precu	somatotropin precu	somatotropin precu	somatotropin - dom	somatotropin precu	somatotropin - bu	somatotropin - bu	somatotropin - bow	somatotropin precu	choriomammotropin	somatotropin - blu	EST/beta-Gal mutan	growth hormone - c	growth hormone II	growth hormone I	somatotropin precu
STBO	STSH	STGT	532682	S04929	A56816	151188	151250	JS0037	B32435	A60623	167761	151114	\$69263	S69262	S02764
-	-	-	7	~	~	7	~	7	~	~	4	7	N	~	7
217	217	217	217	216	190	215	195	215	199	183	87	200	210	210	210
54.8	54.8	54.8	54.8	53.8	50.8	50.8	49.2	49.2	46.9	44.6	37.9	37.3	33.5	33.5	33.5
142.5	142.5	142.5	142.5	140	1.32	132	128	128	122	116	98.5	65	87	87	87
_	Ξ	32	33	34	35	36	37	38	39	0	<u>-</u>	2	۳	*	5

ALLIGNMENTS.

```
somatotropin | precursor [validated] - human
N.Alternate names: growth hormone 1; hGH-N; pituitary somatofropin
N.Contains: growth hormone 5K peptide; somatotropin 1, long form; somatotropin 1, sl
                                                                                                                                                                                                                                                           C.Species: Homo sapiens (man)
C.Date: 24 Apr.1984 #sequence_revision 10-Feb 1995 #text_change 08-Dec-2000
C.Date: 24 Apr.1984 #sequence_revision 10-Feb 1995 #text_change 08-Dec-2000
C.Date: 24 Apr.1984 #sequence_revision 10-Feb 1995 #text_change 08-Dec-2000
C.Date: 24 Apr.1984 #sequence_revision 499778; A90217;
C.Date: 24 Apr.1985 #sequence and mkNA structure: possible alternative A.Fitle: Human growth hormone DNA sequence and mkNA structure: possible alternative A.Feberence number: A9373; MUID:8201499; PMID:6269091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A Molecule type: DNA
A; Residues: 1-217 cDEN>
A; Cross-references: 05:V00520
A; Cross-references: 05:V00520
A; Note: the 20K short (form sometotropin lacks residues 58.72 (32.46 in the active hk
R; Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seebur-
Genomics 4, 479-497, 1989
A; Title: The human growth hormone locus: nucleotide sequence, biology, and evolution
A; Reference number: A32435, MUID:89307277; PMID:2744760
RESULT 1
```

A;Molecule type: DNA A;Residues: 1-217 cCHE> A;Cross-references: GB:303071; NID:9183148; PIDN:AAA52549.1; PiD:9183149

Rikoskam, W.; Rougeon, F.

Nucleic Acids Res. 7, 305-320, 1979

Aritle: Molcoular cloning and nucleotide sequence of the human growth hormone structure. Alreference number: A93694; MUID:80034477; PMID:386281

A. Reference number: A93694.

A;Molecule type: mRNA A;Residues: 1-217 <ROS> A;Cross-references: GB:V00519

hor

A;Note: 35-Pro was also found R;Martial, J.A.: Hallewell, R.A.; Baxter, J.D.; Goodman, H.M. Science 205, 602-607, 1979 A;Title: Human growth hormone: complementary DNA cloning and expression in bacteria. A;Reference number: A94247; MUID:79203293; PMID:377496

A Molecule type: mRNA A:Residues: 1-217 <MAR> R:Li, C.H.; Dixon, J.S.; Liu, W.K. Arch, Blochen, Blophys, 133, 70-91, 1569 A:Title: Human pituitary growth hormone, XIX. The primary structure of the hormone. A:Reference number: A90048; MUID:69289202; PMID:5810834

A.Contents: annotation
R.Li, C.H.; Dixon, J.S.
Arch. Biochem. Biophys. 146, 233-236, 1971
A.Title: Human pituitary growth hormone. XXXII. The primary structure of the hormone A.Reference number: A90051; MUID:72143935; PMID:5:44027
A.Reference number: A90051

A; Molecule type: protein

Ţ

```
Sommator or thesus macaque
Sommator or thesus macaque
N'Alternate names: growth hormone
C'Species: Macaca mulatta (rhesus uacaque)
C'Date: 31-May-1996 #sequence_rev sion 31-May-1996 #text_change 16-Jul-1999
C'Accession: 167410: A05094
R'Golos, T.G.: Durning, M.: Fisher, J.M.: Fowler, P.D.
Endocrinology 133, 1744-17:2, 1993
A'Title: Cloning of four growth hormone/chorionic somatomammo! ropin-related complement Areterence number: 153267; MUID: 94008724; PMID: 84:4617
A'Reference number: 125.287; 287-291, 1986
A'Reference number: 245, 287-291, 1986
A'Title: The primary structure of monkey pituitariey growth hormone.
A'Reference number: A05094; MUID: 86129460; PMID: 3080959
A'Accession: A05094; MUID: 86129460; PMID: 3080959
A'Accession: A05094
A'Molecule type: protein
A'Residues: 27-99, 'O', 101-178, 'D', 180-217 < +105
A'Note: the monkey species is not identified in the reference
B'Reben, M.S
Schence 125, 883-884, 1957
A'Ille: Preparation of growth hormone from pituitaries of man and monkey.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           growth hormone variant; hGH-V; placental somator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C:Comment: The gene for this hormone is transcribed only in somatotrophic cells of C:Comment: About 90\% of somatotropin is the 22K long form.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              somatotropin 2 precursor - human
N;Alternate names: growth hormone 2; growth hormone variant; hGH-V; placental sc
N;Contains: somatotropin 2, long splice form: somatotropin 2, short splice form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ς;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ··
                                                                                                                                                      A.Cone: GDB:GH1
A.Cross-references: GDB:119982; GMIM:139250
A.Map position: 17q23.1-17q23.3
A:Map position: 17q23.1-17q23.3
A:Introns: 4/1: 57/3; 97/3; 152/3
C:Superfamily: prolactin
C:Superfamily: prolactin
C:Superfamily: prolactin
F:12-26/Pomain: signal sequence #status predicted <SIG>F:27-217/Product: somatchtropin 1, long form #status experimental <SO;>F:27-69/Product: gomatchtropin 1, long form #status experimental <SO;>F:27-57,73-217/Product: somatchtropin 1, short form #status experimental <SOS>F:79-191,208-215/Disulfide honds: #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 FPTIFLSRLFUNAMLRAHRLHQLAFUTYQFFEEAYIPKEQKYSFLQNF 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITTOTTHO THEOLIGATION OF THE TITTOTTH FERTING FOR THE SPLEIN AMERICAN SECTION SECTIONS OF THE SECOND SECTIONS OF THE SECOND SEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98.1%; Score 255; DB 2; Length 217; 100.0%; Pred. No. 2e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98.1%; Score 255; DB 1; Length 217;
100.0%; Pred. No. 2e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 FPTIPLISHLFDNAMLRAHRLHQLAFDTYQEFEEAYTFKEQKYSFLONP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A:Contents: annotation; identification of source organism C.Superfamily: reclaims
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ilarity 100.0%;
Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 100.
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Superfamily: prolacting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
Matches 48; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ocery March
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                        C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STHUV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Title: The chemistry of the human lactogenic hormones.
A; Reference number: A94427
A; Contents: annotation: Somatotropin revision
B; Bewley, T.A.; (pixon. J.S.: i.) 2.
Int. J. Papt. Protein Res. 4, 281-287
A; Title: Sequence comparison of bursas printing growth crimone, human cherronic somatome
A; Reference number: A97764; MUD0:730:4248; PR:10-467454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A.Molecule type: protein
A.Residues: 46-57:73-80 cLEW>
R.Chapman, G.E.; Rogers, K.M.; Brittain, T.; Bradshaw, R.A.; Bates, G.J.; Turner, C.; Ca
J. Biol. (Them. 256, 2395-2401, 1981
A.Title: The 20.000 molecular weight variant of human growth hormone. Preparation and so
A.Reference number: A92311; MUID:81117361; PMID:7462247
A.Contents: somatotropin, 20K short variant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Title: Periplasmic production of correctly processed human growth hormone in Escherich A;Reference number: 141126; MUID:86137393; PMID:3912261
A;Accession: 184549
                                                                                                                                                                                                                                                                                                                                                                                   Riviall, H.D.; Hogan, M.L.; Sauer, R.; Rosenblum, L.Y.; Greenwood, F.C.
Proc. Nat. Acad. Sci. U.S.A. 68, 866-869, 1971
A.Title: Sequences of pituitary and placental lactogenic and growth hormones: evolution A;Reference number: A93778; MUID:71153968; PMID:5279528
A,Accession: A94778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A:Title: Human growth hormone and extrace:Lular domain of its receptor: crystal structur
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A.Molecule type: protein
A.Residues: 27-217 cBEW>
A.Residues: 27-217 cBEW>
B.E.WAIS. U.G.; Bootewald, L.F.; Lewis, L.G.
Blochem. Biophys. Res. Commun. 92, 511-516, 1980
A.Title: The 20,000-dalton variant of human growth hormone: location of the amino acid A.Reference numbor: A90217; MUID:80130196; PMID:7356479
A.Contents: somatotropin, 20K short variant
A.Accession: A90217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A:Note: growth hormone 5K peptide has insulin potentiating activity: its physiological
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RiRobson, V.M.J.: Rac, I.D.; NG, F.
Biol. Chem. Hoppe-Seyler 371, 423-431, 1990
Affiller: Identification of the aspartimide structure in a previously-reported peptide.
A.Reference number: 809685; MUID:90334745; PMID:2378679
A.Rocession: $09685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      described
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Title: Human growth hormone peptide 1 43: isolation from pituitary glands
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross·references: GB:M14398; NID:g183158; PIDN:AAA52554.1; PID:g183159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A:Contents: annotation; X-ray crystallography, 2.6 angstroms
A;Note: The structure of the complex with growth hormone receptor is
R:GTay, 6.1.; Raldridge, J.S.; McKeown, K.S.; Heyneker, H.L.; Chang,
Gene 39, 247-254, 1995
A;Residues: 27-94;96-217 <LIC>
R;Niall, H.D.
Nature New Biol. 230, 90-91, 1971
A;Title: Revised primary structure for human growth hormone.
A;Reference number: A93397; MUID:71139765; PMID:5279046
A;Recession: A93397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Reference number: A41728; MUID: 92196577; PM 111549776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A:Molecuie type: protein
A;Residues: 27-57,73-79 -CHA>
R:Singid, Rev.P.: Seavey, B.K.: Lewis, L.J.: Lewis, U.J.
J. Protein Chem. 2, 425-436, 1983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Status: preliminary: translated from GB/EMBL/DDBJ
A:Molecule type: mkNA
A:Residues: 1-26 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A:Residues: 27-34, CL', 36-47 <ROB>
R:de Vos. A.M.: Uitsch, M.: Kossiakott, A.A.
Science 255, 306-312, 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A,Molecule type: protein
A,Residues: 119-120;157-159 <NI2>
R;Niall, H.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Reference number: A61466
                                                                                                                                                                                                                                                                                              A; Molecule type: protein A; Residues: 27-51 <NIA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: protein A; Residues: 27-69 <SIN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Molecuie type: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Accession: A91764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A:Accession: A61466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: A92311
```

 \sim

0

```
C,Accession: 167408
R;Golos, T.G.: Durning, M.; Fisher, J.M.: Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A.;Title: Cloning of four growth hormone/chorionic sometomammotropin-related compleme A;Reference number: 153267; MUID: 94008724; PMID: 8404617
A;Recession: 167408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        chorionic somatomammotropin-1 - rhesus macaque
C:Species: Macaca mulatia (rhesus macaque)
C:Date: 31-May-1956 Msequence_revision 31-May-1996 #text_change 16-Jul-1999
C:Accession: 153267
R:Gols, T.C.: Durnina, Mr. Fisher, J.M.: Fowler, P.D.
Brodorinology 133, 1744-1752, 1993
A/Title: Cloning of four growth hormone/chorionic somatomammotropin-related compleme
A/Reference number: 153267: MUID:94008724: PMID:8404617
A/Accession: 153267
A/Status: preliminary: translated from GB/EMBL/DDBJ
A/Status: preliminary: translated from GB/EMBL/DDBJ
A/Residues: 1-217 ***RFS
A/Cross-references: GB:116552; NID:9293108; PIDN:AAA18839.1; PID:9293109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        chorionic somatomammotr: [n-2] ribesus macaque (fragment)
C:Species: Macaca mulat: (thesus maraque)
C:Date: [1-May_1996 #sequence_revision 31-May-1996 #text_change 16-Jul:1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: mRNA
A;Residues: 1-212 <RES>
A;Cross-references: GB:L16553; NID:q293110; FIDN:AAA18840.1; FID:g293111
C;Superfamily: prolactin
                                                                                                                                                                                                                                                                                                                                                                                C;Superfamily: prolactin
C;Keywords: alternative splicing; hormone; placenta
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-256/Product: somatotropin 2 splice form 2 *status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 FPTTFLSKI FDNAMI RABKLHQLAFDTYQDPEFAY1 PKECKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 228; DB 1; Length 256; Pred. No. 5.6e-21; 2; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81.9%; Score 213; D8 2; Length 212; 78.7%; Pred. No. 3.4e-19;
tive 9; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3 PTIPLSRLEDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23 PSVPLSRLEDHAMIQAHKLHQLAPDTYQEFERAYIPKEKKHSLMENP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81.9%; Score 213; DB 2; Length 217; 78.7%; Pred. No. 3.5e-19; Live 9; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 PTIPLSRLFUNAMIRAHRLHQLAFDTYQFFEEAYIPKEGKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28 PSVPLSRLFDHAMIQAHRLHOLAFDTYQEFEEAYIPKEKKHSLMERP 74
                                                                                                                                              A:Note: an alternative splice junction for intron 4 is used C;Genetics:
A;Gene: GDB:GH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A:Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2: Mismatches
                                                                                                                                                                                                                                                                             GDB:119983; OMIM:139240
                                                                                                                                                                                                                                                                                                         A:Map position: 17q22-17q24
A:Introns: 4/1; 57/3; 97/3; 152/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           87.78;
91.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 78.79
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 91.7
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity 78.7
Matches 37; Conservative
                                                                                   A; Molecule type: mRNA
A; Residues: 1-256 <COO>
                                                                                                                                                                                                                                                                         A; Cross-references:
                                                   A; Accession: A28072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: According to the formal properties of the formal properti
Genomics 4, 479-497, 1989
A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A;Reference number: A32435; MUID:89307277; PMID:2744760
A;Accession: D32435
A;Accession: B32435
A;Accession: B324375
A;Accession: B28072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C.Accession: A28072
R.COOKE, N.E.; Ray, J.; Emery, J.G.; Liebhabor, S.A.
J. Biol. Chem. 263, 9001-9006, 1988
A.Title: Two distinct species of human growth hormone-variant mRNA in the human placental A:Reference number: A92725; WUID:88243769; PMID:3379057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         F:27-217/Product: somatorropin 2, long splice form Estatus predicted <sol>
F:27-57,73-217/Product: somatorropin 2, short splice form #status predicted <sos>
F:79-191,208-215/Disultide bonds: Estatus predicted
F:166/Binding site: carbohydrate (Asn) (covalent) *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ..
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C.Species: Homo sapiens (man)
C.Date: 10-Sep-1989 #sequence_revision 10-Feb:-1995 #text_change 02-Sep-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        somatotiopin 2 precursor, splice form 2 - human
N/Alternate names: growth hormone variant-2; placental somatotropin form 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A.Map position: 17922-17924
A.Introns: 4/1: 57/3: 97/3: 152/3
C.Superfamily: prolactin
C.Keywords: alternative splicing: qlycoprotein: hormone; placenta
F:1-26/Domain: signal sequence estatus predicted <SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87.7%; Score 228; DB 1; Length 217; 91.7%; Pred. No. 4.66-21;
tive 2; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A:Gene: GDB:GH2
A:Cross references: GDB:L19983: OMIM:139240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best focal Similarity
```

Query Match Matches

RESULT 4

0

0

```
R:Tanaka, M.; Masuda, N.; Watahiki, M.; Yamukawa, M.; Slimiku, K.; Naqai, J.; Nakashi
Biochem. Int. 16, 287-292, 1988
A:Title: cDNA cloning of human chorionic socatomanmotropin-l DRNA whose transcription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A:Molecule type: protein
A:Residues: 1,3-26 (SME)
A:Experimental Source: placenta
R:Shine, J.; Seeburg, P.H.; Martial, J.A.; Baxter, J.D.; Goodman, H.M.
Nature 270, 494-499, 1977
Nature: 270, 494-499, 1977
A:Title: Construction and analysis of recombinant UNA for human chorionic somatomamm
A:Reference number: A93192; MUID:78671761; FMIU:593368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R:Goodman, H.M.; DeNoto, F.: Fiddns, J.C.; Halleweil, R.A.; Paue, G.S.; Smith, S.; Ti
in Mobilization and Reassembly of Genetic Information, Scott, M.A., Werner, R., Josep
A:Reference number: A94422
                                                                                                                                                                                                                                                                                                                                                                                                                                              C.Date: 23-Oct. 1981 #sequence_revision 23-Oct. 1981 #text_change 08-Dac-2000
C.Accession: C.22435, A94422; I52342; A93833; A93192; A90054; A94427; A61283; I55229;
R.Chen, E.Y.: Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg,
Genomics 4, 479-497, 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AsTitle: The human growth hormone locus; nucleotion sequence, biology, and evolution.
AsReference number: A42445; MilloR9407277; PRID:2744765
AsReession: 472435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the precursor to human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Catechol-O-methyltransferase from human placenta: purification and some prop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          in Prolactin and Carcinoqenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, A;Tille: The chemistry of the human lactogenic hormones.
A;Reference number: A944.?
A;Reference number: A944.27
                                                              ö
                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A.Cross-reterences: GB:J03071; NID:q183148; FI:N:AAA52551.1; PID:q183151
                                                                                                                                                                                                                                                                                                                                                     choriomammotropin A precursor [validated] - human
N:Alternate names: chorionic somatomanmotropin 1; placental lactogen
                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A:Molecule Lype: DNA
A:Residues: 50-217 cSH1>
A:Residues: 50-217 cSH2>
A:Experimental Source: placenta
B:Li, C.H.: Dixon, J.S. Dhung, D.
Arch. Biocham. Riophys. 155, 95-119, 1973
A:Title: Amino acid sequence of human chorionic somalomammotropin.
A:Reterence number: A90054: MUID:73201971; PMID:472456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: mRNA
A; Residues: 1-3 <TAN>
A; Cross-references: GS:M:5419; NID:q506822
A; Cross-references: GS:M:5419; NID:q506822
R:Sherwood, L.M.; Burstein, Y.; Schechter, I.
Proc. Natl. Acad. Sci. U.S.A. 76, 3819-3823, 1979
A; Tible: Primary structure of the NH-2-termina: extra piece of
A; Reference number: A93833; MUID:80034970; PMID:291643
A; Accession: A93833;
                                                                                                                        4 TIPLSRLFDNAMLRAHRLHULAFDTYQEFEEAYIPKEQKYSFLON 48
                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Reference number: 152342; MUID:86209096; PMID:2835050
Pred. No. 3.4e-17;
                                                          5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Status: translated from GB/EMB:/DDRJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Wolecule type: protein
A;Residues: 27-217 <NIA>
A;Xperimental source: placenta
R;Nic A Bhaird, N.; Tipton, K.F.
Biochem. Soc. Trans. 19, 20S, 1991
                    80.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Molecule type: protein
A;Residues: 27-217 <LIC>
A;Experimental source: placenta
                        Best Local Similarity 80.0 Matches 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens (man)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A:Molecule type: DNA
A:Residues: 1-217 <CHE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A:Molecule type: mRNA
A:Residues: 1-217 <000>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      :52342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A:Accession: A90054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: A94422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: A93192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R; Niall, H.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                      C:Species:
                                                                                                                                                                                                                                                                                          RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Title:
                                                                                                                        ò
                                                                                                                                                                                      qq
                                                                                                                                                                            N;Alternate names: growth hormone C;Species: Macaca mulatta (rhesus macaque) C;Species: Macaca mulatta (rhesus macaque) C;Species: May-1996 4sequence_revision 31:May-1996 #text_change 16-Jul-1999 C;Accession: 16741 M: Fisher, J.M.: Fowler, P.D. Endocrinology 134, 1744-1752, 1993 A;Title: Cloning of four growth hormone/chorionic somatomagnotropin-related complementar A;Reference number: 153267; MUID:940008724; PMID:8404617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RiHirt, H.; Kimelman, J.; Birnbaum, M.J.; Chen, E.Y.; Seeburg, P.H.; Eherhardt, N.L.; Ha DNA 6, 59-70, 1987

A.S. Title: The human growth hormone gene locus: structure, evolution, and allelic variation A.Reference number: A26449; MUID:87161235; PMID:8030680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rigolos, T.S.: Durning, M.: Fisher, J.M.: Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A;Title: (Toning of four growth hormone/chorionic sonatomammotropin-related complementar A:Reference number: 153267; MUID:94008724; PMID:8404617
A;Accession: 167409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C.Accession: A26449
C.Accession: A26449
R.Hirt, H.: Kimelman, J.: Birnbaum, M.J.: Chen, E.Y.: Seeburg, P.H.: Eherhardt, N.L.: Ha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Species: Macaca mulatta (rhesus macaque)
C;Date: 31 May:1996 #sequence_revision 31 May:1996 #text_change 16-Jul 1999
C;Accession: 167409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C:Date: 30-Jun-1988 #sequence_revision 30-Jun-1988 #text_change 28-Jul 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Superlamily: prolactin
F;1-26/Homain: signal sequence #status predicted <SIG>
F;27-215/Product: choriomammotropin, hCS-3 allele #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sdep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A:Molecule type: mRNA
A:Residues: 1-217 <RES>
A:Cross:references: GB:L16554; NID:q293112; PIDN:AAA18841.1; P1D:g293113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Molecule Type: mRNA
A;Residues: 1-27 <RES>
A;CTOS*:references: 1-27 <RES>
C;Superfamily: prolaction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQFFFFAYIPKEGKYSFI,CNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FPTIPLSWLFNTAVFRAHHLHKLAFDTYPKFEFAYIPKEGKYSFIRNP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 PTIPLSRLFDNAMLRAHRLHGLAFDTYGEFEFAY:PKFGKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77.3%; Score 201; DB 2; Length 217; 74.5%; Pred. No. 1.1e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length: 217,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               78.8%) Sector 206 - 146.25 Ld
79.2%: Fred. No. 4 SectBy
19.2%: Hismatesia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Status: preliminary: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         choriomammotropin precursor (allele hCS-3) - human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              chorionic somatomammotropin-3 - rhesus macaque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match
Best Loral Similarity 74.59
Matches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 79.2
Matches 38: Conservative
                                                                                                                                                    somatotropin – rhesus macaque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Species: Homo sapiens (man)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C;Supertamily: prolactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Molecule type: DNA
A;Residues: 1-215 <HIR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
```

..

Gaps

..

```
C:Species: Mus musculus (house mouse)
C:Species: Mus musculus (house mouse)
C:Accession: B2311
R:Linzer, D.1.H.: Taiamantes, F.
J. Balol. Chem. 260, 9574-9579, 1985
A:Title: Nucleotide sequence of mouse prolactin and growth hormone mKNAs and expres A:Reference number: A92548; MulD:85261358; PMID:2991252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A.Molecule type: mRNA
A.Residues: 1-216 <LIN>
A.Cross-references: GB:X02891: GB:K03232; N:D:g5:067; PIDN:CAA26650.1; PID:g5:1068
C.Superfamily: prolactin
C.Superfamily: prolactin
C.Keywords: anterior pituitary; growth factor; hormone
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-216/Product: somatofropin #status predicted
F:78-189,206-214/Disulfide bonds: #status predicted
                                                         A;Cross-references: GB:J03071; NID:9183148; PIDN:AAA52553.1; PID:9183153
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27 FPAMPLSSLFSNAVLRAGHLHGLAADTYKEFERAY?PEGGRYS-1QN 72
                                                                                                                                                                                                                                                                                     Score 197; DB 2; Length 217;
Pred. No. 3.5e-17;
5; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                          29 IVPLSKI,FDHAMIQAHRANQIAIDTYQEFEETYIPKDQKYSFI,HD 73
                                                                                                                                                                                                                                                                                                                                                                                                           4 TIPLSELFUNAMIRAHRIHOLAFUTYOEFEEAYIPKEOKYSFLON 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 FPT1PLSRLFDNAMLRAHRLHQLAFDTYGEFEEAYIPKEOKYSFLQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9,4e-13;
ches 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Note: article in Russian with English abstract.
C:Superfamily: prodactin
C:Keywords: growth factor: hormone
F:52-163,180-188/Disulfide bonds: *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62.1%; Score 161.5; 68.1%; Pred. No. 9.4
                                                                                                                                  A,Gene: GDB:CSH2
A,Cross-references: GDB:l19813; OMIM:118820
                                                                                                                                                                                                                                                                                     75.8%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NyAlternate names: growth Lormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N:Alternate names: growth hormone
                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 80.0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       somatotropin precursor - mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity 68.19
Tes 32: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                            A;Map position: 17q22-17q24
C;Superfamily: prolactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A:Molecule type: protein
A:Residues: 1-190 <YUD>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            somatotropin - sei whale
               A; Molecule type: DNA
A; Residues: 1-217 <CHE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A:Accession: PN0140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Accession: B23911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                    Rischneider, A.B.; Kowalski, K.; Russell, J.; Sherwood, L.M.
J. Biol. Chem. 254, 3782-3787, 1979
A.Title: Identification of the interchain disulfide bonds of dimeric human placental lad A.Reference number: A92251; MUIO:79178081; PMT: 478159
A.Contents: accordation; dimeric disulfide bond
A.Reference number: A92251; MUIO:79178081; PMT: 478159
A.Contents: accordation; dimeric disulfide bond
A.Contents: accordation; dimeric disulfide bond
A.Contents: accordation; dimeric disulfide bond
A. Baiol. Chem. 254, 3131-1338, 1944
A.Title: Analysis of a major human chorical samatomammofropin gene. Evidence for two fit
                                                                                                               ANote: choriomammotropin apparently copurified with placental catechol-O-methyltransfer Rysherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.; McKanin, M.D.; Lanner, M.; Mature New Hiol. 233, 59-61, 1971.
A fitte: Amino-acid sequence of human placental lactogen.
A:Reference number: A93401; MUID:72016313; PMID:5286363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ٦
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N;Alternate names: chorionic somatomammotropin 2
C;Species: Homo sapiens (man)
C;Date: 24-Dec-1899 *Sequence_revision 29-Dec-1999 *text_change 16-Jul-1999
C;Accession: E:34.35
R;Chen. E.Y.: Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, Genomics 4, 479-497, 1989
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution. A;Reference number: A12435; MUID:89307277; PMID:2744760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F:208-215/Disulfide bonds: (in monomeric form) *status experimental
F:208/Disulfide bonds: interchain (to 21% in dimeric form) *status experimental
F:215/Disulfide bonds: interchain (to 20% in dimeric form) *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .:
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A.Cross-references: GB.K02401; NID:g181120 (DN:AAA52115.1; PID:g181121 R:Secburg, P.H.; Shine, J.; Martial, J.A.; Frich, A.; Goodman, H. Trans. Assoc. Am. Physicians 90, 169-116, ...? A. A.; File: Nucleotide sequence of a human ger: Coding for a polypoptide Lormone. A.Reference number: 159658: MUID:78160787; MID:611657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A:Status: Lranslated from GB/EMBL/DDLJ
A:Molecule type: mRNA
A:Residues: 160-217 <RE2>
A:Cross-references: GB:M25118; NID:9181124; PIDN:AAA35721.1; PID:9181125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C:Reywords: hormone: placenta
F:1-26/Domain: signal sequence #status experimental <SIG>
F:27-217/Product: choriomammotropin A #status experimental <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4 TIPLSRLFDNAMLRAHRIHQLAFDTYGEFEFAYIPKEGKYSFLON 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1:1111111:111:111 : 111 | 111 | 1111111 | : 1111111 | : 29 | TVPL.SRLEDHAMLQAHRAHQLAIDTYGEFETY1PKDGKYSFLHD 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4: Indels
                                                                                                                                                                                                                                                                                                              Σ
                                                                                                                                                                                                                                                                                                 R;Sherwood, L.M.: Handwerger, S.; McLaurin, W.D.; Lanner,
Nature New Biol. 235, 64, 1972
A:Reference number: A93405
A;Reference number: A61283; MUID:91244006; PMID:2037148
A;Accession: A61283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 197; DB 1;
Pred. No. 3.5e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F:79-191/Disulfide bonds: #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cross-references: GDB:119084; OMIM:150200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Accession: I55229
A;Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           choriomammotropin B precursor - human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A:Map position: 17q22-17q24
A:Introns: 4/1: 57/3: 97/3: 152/3
C:Superfamily: prolactin
C:Reyards: hormone: placenta
F:1-26/Domain: signal sequence #st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75.8%;
80.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match
Best Local Similarity 80.0v
Best Local Similarity 80.0v
                                                            A; Molecule type: protein
A; Residues: 27-46 <NIC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: DNA
A; Residues: 1-217 <RES>
                                                                                                                                                                                                                                                                           Contents: annotation
                                                                                                                                                                                                                                                                                                                                                                                              A;Contents: annotation
R;Schneider, A.B.; Kowa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Accession: E32435
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: 159658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gene: GDB:CSH1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
```

.; **:**

Gaps

ä

Indels

8

Length 216;

```
ä
C:Species: Balaenoptera borealis (sei whale)
C:Date: 07-May-1993 *sequence_revision 07-May-1999 *text_change 07-May-1999
C:Date: 07-May-1993 *sequence_revision 07-May-1999
E:Robaro N.A.: Pankov, Y.A.: Bulatov, A.A.: Osipova, T.A.
Biokhinia 47, 1059-1065, 1982
A:Title: Amino acid sequence of seiwhale somatorropin.
A:Reference number: PN0140; MUID:83000569; PMID:7115813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61.7%; Score 160.5; DB 2; 68.1%; Pred. No. 1.1e-12;
```

```
2 FPTIPLSRIFONAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQN 48
                                                                                                                       Search completed: September 15, 2003, 12:04:18
Job time : 9.07885 secs
         ò
                                                    a
                                                                                                                                                                                C;Date: 14.211-1981 *sequence_revision 13.4u; 1981 *text_change 23.Aug-1996
C;Accession: A9172; A91395; A91381; A90240; A01514
R;Zakin, M.M.; Poskus, E.; Langton, A.A.; Ferrara, P.; Santome, J.A.; Dellacha, J.M.; Pa
Int. J. Pept. Protein Res. 8, 435-444, 1976
A;Title: Primary st.acture of equine growth hormone.
A;Reference number: A91772; MUID:77005410; PMID:965151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rizakin, M.M.; Poskus, E.; Dellacha, J.M.; P.;adini, A.C.; Santome, J.A.
FEBS Lett. 25, 77-82, 1972
Affile: Amino acid sequences around the cystine residues in equine growth hormone.
A;Reference number: A91383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rioliver, L.; Hartree, A.S.
Biochem, J. 109, 19-24, 1968
Affiller Amino acid sequences around the cystine residues in horse growth hormone.
A;Reference number: A90240; MUID:68368390; PMID:4876100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Caps
                                                                                                                                                                                                                                                                                                                                                     A; Molecuie Lype: protein
A; Residues: 1-190 <2AK>
R; Zakin, M. Wu; Puskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome,
FEBS Lett. 34, 53-35, 1934
A; Tille: The anito acid Sequence of equine at with horacte.
A; Reference manner: A91395; MOLE:7402(602) P. De4747849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61.3%: Score 159 5; DB 2; Length 190;
68.1%: Pred. No. 1.4e-12;
live 6; Mismatches 8; Indels 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1: Length 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FPAMPLSSLFANAVLRAQHLHELAADTYKF ERAYIPEGORY-FLQN 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .4e-12;
os 8; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 FPT1PLSRLFDNAMLRAHRLHQLAFDTYQFFEEAYIPKEQKYSFLQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Molecuie type: protein
A;Residues: 1-190 <HQL>
A;Residues: 1-190 <HQL>
C;Superimental source: pituitary qland
C;Superfamily: prolactin
F;1-190/Froduct: somatotropin #status exper. "ntal <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C;Superjamily: prolactin
C;Keywords: hormone; pituitary
F;52-163,180-188/Disulfide bonds: *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 159.5; i
Pred. No. 1.4e-
6; Mismatches
                                                                                                                                         N;Alternate names: growth hormone
C;Species: Equus caballus (domestic horse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61.3%;
68.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Molecule type: protein
A;Residues: 42-69;157-190 <2A3>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  somatotropin - African elephant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 32; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Molecule type: protein
A;Residues: 176:190 <cLI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 32: Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Molecule type: protein
A;Residues: 1-190 <2A2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity
                                                                                                                     somatotropin - horse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: A91395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Accession: A91483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
  g
```

GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.

OM protein - protein search, using sw model

September 15, 2003, 11:54:00; Search time 4,56631 Seconds (without alignments) 504.633 Million cell updates/sec Run on:

Title: Perfect score:

US-09-423-100-1 260 | MFPTIPLSRLEDNAMLRAHR.....QEFEEAYIPKEOKYSFLONP 49 Sequence:

Scoring table:

BLCSUM62 Gapop 10.0 , Gapext 0.5

127864 seqs, 47026705 residues Searched:

12786.4 t litts satisfying chosen parameters: Total number

Minimum 88 seq Fenath: 0 Maximum 88 seq Fenath: 2000.00000

Post-processing: Minimum Match 0%
Maximum Match 100%
[Listing first 45 summaring

SwissProt_41:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

		٥					
Result		Ouery					
O X	Score	Match	Match Length	DB	ID	Description	ption
	255	- ao	217	-	NAMES OF STREET		
• ‹	1 6		1 6	1 •	NOW THE PARTY OF T	7.47.0.4	none sapren
7	447	1.86	217		SOMA_MACMU	P33093	macaca mula
~	255	98.1	217	_	SOMA_PANTR	P58756	pan trodlod
4	249	95.8	217	-	SOMA_CALJA	09qmb3	
S	244	95.8	217	-	SOMA_SATHB	P58343	
ş	536	90.8	217	-	SOM2_PANTR	P58757	pan troglod
7	778	87.7	217	7	SOM2_HUMAN	P01242	
ထ	561	76.5	217	~	SOM2_MACMU	007370	_
5	147	75.8	217	~	PI.I. HUMAN	P01243	
10	161.5	62.1	216	-	SOMA_MOUSE	P06880	_
11	160.5	61.7	190	_	SOMA_BALHO	P33092	_
12	159.5	 	190	-	SOMA_LOXAF	P20392	
13	159.5	61.3	190	-	SOMA_VULVU	P10766	•
14	159.5	61.3	216	~	SOMA_CANFA	P33711	
15	159.5	61.3	216	-	SOMA_FELCA	P46404	
16	159.5	61.3	216	-	SOMA_HORSE	P01245	ednns
17	154.5	61.3	216	-	SOMA_MESAU	P37886	
18	159.5	61.3	216	-	SOMA_PIG	P01248	sus scrofa
19	159.5	61.3	216	-	SOMA_RABIT	P46407	-
20	159.5	61.3	216	-	SOMA_RAT	P01244	
23	159.5	61.3	217	-	SOMA_GALSE	09qkal	
22	159.0	63.3	217	-	SOMA_NYCPY	09qmb2	
53	156.5	60.2	216	-	SOMA_MUSVI	P19795	mustela vis
24	155.5	59.8	190	7	SOMA_LAMPA	P37885	lama quanic
25	150	57.7	216	-	SOMA_MELGA	P22077	-
5 8	148	56.9	191	-	SOMA_CHEMY	P34005	
27	145	55.8	215	-	SOMA_MONDC	094160	monodelphis
28	145	55.8	215	-	SOMA_TRIVU	062754	
29	144	55.4	190	-	SOM1_ACIGU	P26773	acipenser g
30	144	55.4	190	-	SOM2_ACIGU	P26774	
31	144	55.4	216	~	SOMA_CHICK	P08998	gallus gali
32	❖	54.8	217	-	SOMA_BOVIN	P01246	bos taurus
33	142.5	54.8	217	-	SOMA_CEREL	P56437	cervus elap

PC1247 ovis aries	O9pwg3 struthio ca	P55755 crocodylus	P11228 anas platyr	018938 bubalus bub	Pl0813 rana catesb	P79885 lepisosteus	P12855 xenopus lae	P34006 prionace gl	073848 protopterus	073849 bufo marinu	P12856 xenopus lae
SOMA_SHEEP	SOMA_STRCA	SOMA_CRONO	SOMA_ANAPI.	SOMA_BUBBU	SOMA_RANCA	SCMA_LEPOS	SOMA_XENLA	SOMA_PRIGI.	SOMA_PROAN	SOMA_BUFMA	SOMB_XENLA
٦.	-	-	, -		.	_	_	_	r-1	, →	-
217	717	190	216	217	235	2:1	2:4	183	206	213	208
ω.	٠.	ထ	œ	,_	က	_	9	ç	_	۲-	0
8.4	4.	53	53.	52.	50	48	46	4	43.	42.	40.
142.5	747	140	140	135.5	132	125	122	116	112	111	104
34	c C	36	37	38	39	40	4	42	43	44	4 5

ALIGNMENTS

```
TISSUE-PILUITEATY;
MEDILIKE-20402571; PubMed=10931946;
Hu R.-M., Han Z.-G., Song H.-D., Peng Y. D., Huang Q.-H., Ren S.-X.,
Gu Y.-J., Huang C.-H., Li Y.-B., Jiang C. L., Fu G., Zhang Q.-H.,
Gu B.-W., Dai M., Mao Y.-F., Gao G.-F., Kong R., Ye M., Zhou J.,
Xu S.-H., Gu J., Shi J.-X., Jin W.-R., Zhang C.-K., Wu T.-M.,
Huang G.-Y., Chen M.-D., Chen J.-L.,
Gene expression profilling in the human hypothalamus-pituitary-adrenal
axis and full-length CDNA cloning."
                                                                                                                                                                      MEDIJNE-86137393; PubMed-3912261; Gray G.L., Baldridge J.S., McKeown K.S., Heyneker H.L., Chang C.N.; Periplasmic production of correctly processed human growth hormone in Escherichia coli: natural and hacterial standi sequences are interchangeatte.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REVISION.

Midal H.D.:

"The chemistry of the human lactografic hormones.";

(In) Griffiths K. (eds.);

Prolactin and carcinogenesis, Proc. fourth tenovus workshop prolactin, pp. 14-20. Alpha Omega Alpha Press, Cardiff (1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDILINE 718.468, Pubmed-5279528, Niall H.D., Hogan M.L., Sauer R., Rosenblum L.Y., Greenwood P.C.; "Sequences of pituliary and placental lartogenic and growth hormones: Pevolution from a primordial peptide by gene reduplication."; Proc. Natl. Acad. Sci. U.S.A. 68:866-669(1971).
                                                                                                                                                                                                                                                                                Li C.H., Dixon J.S., Liu W.-K.; "Human pituitary growth hormone, XIX. The primary structure of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENTE OF 27-79 (ISDFORM 2).
MEDIINE-81117361; PubMed-7462247;
Chapman G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J.,
Turner C., Cary P.D., Crane-Robinson C.,
"The 20,000 molecular weight variant of human growth hormone.
Preparation and some physical and chemical properties.";
J. Biol. Chem. 256:2395-2401(1981).
                                                                                                                                                                                                                                                                                                                                                                                  "Human pituitary growth hormone, 32, Th. primary structure of the hormone: revision.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bewley T.A., Dixon J.S., Li C.H., Sequence comparison of human pituitary growth hormone, human chorionic somatomammotropin, and ovine pituitary growth and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Revised primary structure for human growth hormone."; Nature New Biol. 230:90-91(1971).
                                                                                                                                    Natl. Acad. Sci. U.S.A. 97:9543-9548(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             J. Pept. Protein Res. 4:281-287(1972)
                                                                                                                                                                                                                                                                                                                                                                                                          Arch. Biochem. Biophys. 146:233-236(1971)
                                                                                                                                                                                                                                                                                                                       Arch. Biochem. Biophys. 133:70-91(1969)
                                                                                                                                                                                                                                                                       MEDLINE-69289202: PubMed-5810834;
                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 27-217, AND REVISIONS MEDILINE-72143935; PubMed~5144027;
                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-73092028; PubMed-4675454;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 46-80 (ISOFORM 2).
MEDLINE-80130196; Pubmed-7356479;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 27-61 AND 102-124,
MEDLINE-71139765; PubMed+5279046;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REVISIONS TO 119-120 AND 157-159.
         SEGUENCE FROM N.A. (ISOFORM 4).
                                                                                                                                                          SEQUENCE OF 1-26 FROM N.A.
                                                                                                                                                                                                                                   13:247 254(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lactogenic hormones.";
                                                                                                                                                                                                                                                                                                                                                                     Li C.H., Dixon J.S.;
                                                                                                                                                                                                                                                            SEQUENCE OF 27-217.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Niall H.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                   REVISION
                                                                                                                                                                                                                                                                                                          hormone.
```

```
MEDLINE-95075462; Pubmed-7984244; % Somers W., Ultsch M., de Vos A.M., Kossiakoff A.A.; Somers W., Ultsch M., de Vos A.M., Kossiakoff A.A.; "The X-ray structure of a growth hormone-prolactin receptor complex."; Nature 372:478-481(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Characterization of single-nucleotide polymorphisms in coding regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cargill M., Altshuler D., Iroland J., Sklar P., Ardlio K., Patil N., Shaw N., Lane C.R., Lim E.P., Kalyanaraman N., Nemesh J., Ziaugra L., Friedland L., Rolfe A., War: ngton J., Lipshutz R., Daley G.O.,
                                                                                                                                                                                DEANIGATION OF GLN-163 AND ASN-178.
MEDILE-2805299; Pubmed-7028740;
Lewis U.J., Singh R. N., Honewald L.F., Seavey B.K.;
"Altered proteolytic cleavage of human growth hormone as a result of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-99318093; PubMed-10391209;
Carghil M., Altshuler D., Iroland J., Sklar P., Ardlic K., Patil N.,
Shaw N., Lanc C.K., Lim E.P., Kalyanaraman N., Nemesh J., Ziaugra L.
Friedland L., Rolfe A., Warrington J., Lipshutz R., Daloy G.O.
Lewis U.J., Bonewald L.F., Lewis L.J.; "The 20,000-dalten variant of human growth hormone: location of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Crystal structure of an antagonist mutant of human growth hormone, G120R, in complex with its receptor at 2.9-A resolution."; J. Biol. Chem. 271:32197-32203(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nat. Genet. 23:373-373(1999).
-!- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sundstroem M., Lundgvist I., Roedin J., Giebel L.B., Milli an D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      de Vos A.M., Ultsch M., Kossiakóff A.A., "Human growth hormone and extracellular domain of its receptor: crystal structure of the complex."; Science 255:306-312(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Prediction of the three dimensional structure of human growth hormone.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ر
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Growth hormone heterogeneity in human pituitary and plasma.
Horm. Res. 51 Suppl. 1:2-6(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The crystal-structure of wild-type growth-hormone at 2.5-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X-RÁY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
Chantalat 5., Chirgadze N.Y., Jones N., Korber F., Navaza
Paviovsk A.G., Wlodawer A.;
                                                                        amino acid deletions.";
Biochem. Biophys. Res. Commun. 92:511-516(1980)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             K-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                 Biol. Chem. 256:11645-11650(1981)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein Pept. Left. 2:333-340(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-99321812; PubMed-10393484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PubMed 3447173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-97113023; PubMed-8943276;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-92196577; Pubmed-1549776;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nat. Genet. 22:231-238(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Proteins 2:162-156(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ochen F.E., Kuntz 1.D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      D-STRUCTURE MOURILING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE -881900733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human qenes.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VARIANT CYS-165.
                                                                                                                                                                                                                                                                                                                                             deamidation."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lander E.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lander E.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Baumann G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    resolution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Norstedt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ERRATUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                         REVIEW.
```

differentiation and proliferation of myoblasts. It also stimulates

```
Best Local Similarity
Matches 48; Conserv
                                                                                                                                                                                                                                                                                                                             SOMA_PANTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOMA_CALJA
Q9GMB3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOMA_CALJA
                                                                                                                                                                                                                                                                                             SOMA_PANTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 4
                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                          WEETETS NAME OF COORDINATE STANDARD CONTRACTOR OF CONTRACTOR OF CONTRACTOR OF COORDINATE STANDARD CONTRACTOR OF C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright, it is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       use by now profit institutions as long as its content is in no wide modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                      Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE 86.29466) PubMed-3080959;
Li C.H., Chenq D., Lahm H.W., Stein S.;
The primary Structure of monkey pituitary growth hormone. [;
Atch. Hiochem. Biophys. 245.287.291 (1986).
-!- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete (GF.). It stimulates both the direrentiation and proliferation of myoblasts. It also stimulates among acid uptake and protein synthesis in muscic and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Somatofreps: precursor (dr.w.h.torser) (dB) (dB N) (Pituriar) growth
                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complementary decayribonucleic acids difficultially expressed during pregnancy in the rhesus monkey placenta."; Endocrinclopy 133:1744-1752(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryola: Merakoa, Chordata, Graniato, Vertetrata; Este costons;
Mammalia; Eutheria, Primatos, Catarrión : Percopithecidae;
                                                                                                   0
                                                                                                                                                          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYC FEEAYIPKEOKYSFLONP 49
                                                                                                                                                                                      SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                      Length 217;
                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2C5180341EEC46D0 CRC64;
Score 255; DB 1; Lien.
b; Pred. No. 6.6e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BY SIMILARITY.
BY SIMILARITY.
E -> Q (IN REF. 2).
N -> D (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE: 94008724; PubMed: 8464617;
Golos T.G., Durning M., Fisher J.M., Foy r P.D.;
"Cloning of tour growth hormone/chorion: smatom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-OCT 1594 (Rel. 30, Last segmence update)
28 FER-2004 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                             217 AA
                                                100.0%; Pred. ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOMATOTROPIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE: PSUU338: SOMATOTROPIN_1: 1. PROSITE: PSUU338: SOMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBCELLULAR LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro: IPR001400: Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Macana mulatta (Emesus managae)
                                                                                                                                                                                                                                                                                                                                                                                                                                    01-00T 1993 (Rel. 27, Created)
01-00T 1994 (Rel. 30, Last Seq.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24913 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           hormony (drowth hornon)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBI.: 1.16556; AAA18842.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pituitary; Signal.
1 26
                      Query Match
Best Local Similarity 100./
Matches 48: Conservative
                                                                                                                                                                                                                                                                                                                                                                             STANDARD:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cercopithecinae; Maraca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            215
100
179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR: 167410: 167410.
HSSP: P01241; 1AXI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         208
100
179
217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 27-217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCB1_Tax1D+9544;
                                                                                                                                                                                                                                                                                                                                                                          SOMA_MACMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hormone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                 SETTITERN DEPRENCE OF OUR CONTRACT OF SETTITION OF SETTIT
```

Length 217;

DB 1;

Score 255;

98.18;

Query Match

```
This SWISS-PROI entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the RMBL outstation the buropean Boinformatics Institute. There are no restrictions of its use by non-profit institutions and and its statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to licensedisb-sib.ch).
                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .:
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -i- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete 16F1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                   28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
58-FEB-2003 (Rel. 41, Last annotation update)
50matofropin precursor (Growth hormone) (GH) (GH-N) (Piluitary growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota, Netazoa, Chordatu, Crumiatu, Verlebiata, Eufeleustomi,
Mammallu, Butheria, Primates, Catarronn, Botnidae, Pan.
                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tissues (By Similarity).
-!- SUBCELLULAR LOCATION: Secreted.
-!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                         49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Revol A., Esquivei D., Santiago D., Barrera-Saldana H.; **Independent diplication of the growt; hormone gene is three
                                                                                                                      74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 FPTIPLSKLFUNAMLKAHRLHÖLAFUTYQEFEBAYIPKEGKYSFLONP
                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Anthropoidean lineages.";
Submitted (APR-2001) to the EMBL/GenBack/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEA295EDE0518674 CRC64;
100.0%; Pred. No. 6.6e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98.1%; Score 255; DB 1; 1
100.0%; Pred. No. 6.6e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOMATOTROPIN.
BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Pred. w..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BY SIMILARITY.
                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE: PS00266; SOMATOTROPIN_1: 1. PROSITE: PS00338; SOMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; AF374232; AAL72284.1; ·.
InterPro; 1PR001400; Somatotropin.
                       .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PR00835; SUMATUTROPIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24843 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pan tradiodytes (Chaspanzee).
                                                                                                                                                                                                                                                                                                                                                                                                          hormone) (Growth bormone 1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hormone: Pituitary: Signal.
                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF00103; hormone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
Matches 48: Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCB1_faxID-9598;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AC AC DT
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ..
O
                                                                                                                                                                         Wallis O.C., Wallis M.,

"Cloning and characterisation of a putative growth hormone encoding
"Cloning and characterisation of a putative growth hormone encoding
"Cloning and characterisation of a putative growth hormone encoding
Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.

FUNCTION: Plays an important role in growth control. Its major
role in stimulating body growth is to stimulate the liver and
other tissues to secrete IGF-I it simulates both the
differentiation and proliferation of myoblasts. It also stimulates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-21265430: PubMed-11371582;
Liu J.C., Makova K.D., Adkins R.M., Gibso. S., Li W.H.;
"Episodic evolution of growth hormone in primates and emergence of the
specificity of human growth hormone receptor.";
Mol. Biol. Evol. 18:945-953(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Saimiri boliviensis boliviensis (Bolivian squirrel monkey).
Eukaryota: Metazoa; Chordata; Craniata; Verlebrata; Euteleostom;
Mammalia; Eutheria; Primates; Platyrrmin; Cebidae; Cebinae; Saimiri.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae;
                                                                                                                                                                                                                                                                                                                          amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ن
                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY: BELONGS TO THE SOMALOTPOPIN/PROLACTIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1: Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    i.7e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E102151A12CE6192 CRC64;
28-FEB-2003 (Rel. 41, Last annotation update) Somatotropin precursor (Growth hormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28-FEB-2003 (Rel. 41, Created)
28 FEB-2003 (Rel. 41, Last sequence update)
28 FEB-2004 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               217 AM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred, No. 3,7e
0; Mismat ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BY SIMILARITY
BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Somatotropin precursor (Growth hormone)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BY SIMILA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOMATOTRO
                                                    Callithrix jacchus (Common marmoset).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam: PF00103; hormone; 1.
PROSITE: PS00266; SOMATOTROPIN_1; 1.
PROSITE; PS00338: SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                         tissues (8y similarity).
-!- SUBGELIULAR LUCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro: IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL: AJ297563; CAC03481.1; ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24959 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hormone: Pituitary; Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity 97.99
Matches 47, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      208 21
217 AA: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=39432;
                                                                                                                        NCBI_TaxID-9483;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PS1241;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOMA_SAIBB
ID SOMA_SAIBB
AC P58343;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HSSP:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CH1
င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
```

```
between the Swiss institute of Rioinformatics and the EMBL outstation-
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                              modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb.sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .;
0
                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                    role in stimulating body growth is to stimulate the liver and other tissues to secrete 10F-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
FUNCTION: Plays an important role in growth control. Its major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, fast sequence update)
28-FEB-2003 (Rel. 41, fast sequence update)
28-FEB-2003 (Rel. 41, fast annotation update)
Growth hormone variant precursor (GH-V) (Placenta-specific growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
-!- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and cube tissues to secrete FOF-1. It stimulates both the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Pan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBCELLULAR LOCATION: Secreted.
TISSUE SPECIFICITY: Expressed in the placenta.
SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                              tissues (By similarity).
SUBCELLULAR LOCATION: Secreted.
SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27 FPTIPLSRLLDNAMLRAHRLHOLAFDTYGEFEEAYIPKEGKYSFLQNP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Revol A., Esquivel D., Santiago D., Barrera-Saldana H.:
*Independent duplication of the growth hormone gene in three
Anthropoidean lineages.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 FPT:PLSKLFUNAMLRAHKLHQLAFDTYQEFEEAY:PKEQKYSFLQNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SCMATOTROPIN.
BY SIMILARITY.
BY SIMILARITY.
9515289992C529F7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.7e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95.8%; Score 249;
97.9%; Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                 PRINTS: FRUÜBBG: SOMALOTROPIN.
PROSITE: PSO0266: SOMATOTROPIN_1; :-
PROSITE: PSO0338: SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                           EMBE, AF339060, AAK62287.1)
InterPro; (PRC01400; Sematofropin,
Pfam: PFC0104; Bormone: 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24864 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pan troglodytes (Chimpanzee).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hormone) (Growth hormone 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                            Hormone, Pituitary, Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27 2
79 1
208 2
217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
tes 47; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID+9598;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOM2_PANTR
P58757:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ô
```

```
and for commercial
                                     'ee http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Capes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "The human growth hormone locus: nuch: ide sequence, biology, and evolution.":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P01242: P05587:
21-JUL-1986 (Rel. 01, Created)
28-FEB 2003 (Rel. 41, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
Growth hormone variant precursor (GH-V) (Placenta-specific growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rmone variant mRNA in the
novel growth hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Seeburg P.H.; *The human growth hormone gene family: nuclectide sequences show recent divergence and predict a new polypeptide hormone.*;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90.8%; Score 2.65; UR 1; Length 217; 93.8%; Prod No. 1.66.22; (3ve. 2; Misharones 1; Edels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-89024984; Pubmed-2460050;
gout A., Scippo M.L., Frankenne F., Hennen G.;
"Cloning and nucleotide sequence of placental hGH-V cDNA.";
Arch. int. Physiol. Blochim. 96:63·67(4988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-89307277; Pubmed-2744760;
Chen E.Y., Liao Y.C., Smith D.H., Barryra-Saldana H.A.,
Gelinas R.E., Seeburg P.H.;
                 Usage by
                                                                                                                                                                                                                                                                                                             GROWTH HERMONE VARIANT.
BY SIMILARITY.
BY SIMILARITY.
1592A429075677DE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or S.A.;
modified and this statement is not rem red. entities requires a license agreement red hor send an email to license@isb-sib.ch,.
                                                                                                                                                                                                                                                      Hormone; Placenta; Signal; Glycoprotein.
SIGNAL 1 26 BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cooke N.E., Ray J., Emery J.G., Liebh
"Two distinct species of human growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. (ISOFORMS 1 AND 2)
MEDLINE-88243769: PubMed-3379057;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  human placenta predict the expression
                                                                                                                                                                  Pfam; PF00103; hormone; 1.
PMOSITE: PS00266; SOMATOTROPIN_1; 1.
PROSITE: PS00338; SOMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bicl. Chem. 263:9001-9006(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-22388257; PubMed-12477932;
                                                                                                                                           InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A. (ISOFORM 1).
MEDLINE-83182010; PubMed-7169009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. (ISOFORM 1).
                                                                                                                                                                                                                                                                                                                                                               208 215 E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hormone) (Growth hormone 2). GH2.
                                                                                                              EMBL; AF374233; AAL72285.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 Similarity 93.8
45. Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Jenomics 4:479-497(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                217
191
215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA 1:239-249(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FISSUE-Placenta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                7.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chen E.Y., Lia
Gelinas R.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOM2_HUMAN
                                                                                                                                                                                                                                                                                                                                                                  DISULFID
                                                                                                                                                                                                                                                                                                                                          DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            profeins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   t Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOM2_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 7
        QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DACODOS SON SERVICIOS DE CONTRA DE C
```

```
between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration
Altschul S.F., Zeeberg B., Buetow K.H., Schanen C.M., Schuler G.D., Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K., A Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hester F., Diatchenko L., Marusina K., Fermer A.A., Rubin G.M., Hong L., Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E., & Brownstein M.J., Usdin T.B., Toshyuki S., Carninci P., Prange C., Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J., & Bosak S.A., McEwan P.J., McKernan K.J., Malex J.A., Gibbs R.A., & Richards S., Worley K.C., Hale S., Garcia A.M., Gibbs R.A., Anderson D.K., Maxor D.M., Sodergren E.J., Lu X., Gibbs R.A., & Willalon D.K., Maxor D.M., Sodergren E.J., Lu X., Gibbs R.A., Anderson A., Young A.C., Shevchenko Y., Bouffard G.G., & Hating M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G., & Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smilus D.E., Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.; Generalion and initial analysis of m.co. than 15,000 full-length C. Fron. Nati. Assis. Sci. U.S.A. 99:18894 1593(202).
                                                                                                                                                                                                                                                                                                                                                                                        Hormone; Placenta; Signal; Glycoprotein; Alternative splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Note-No experimental confirmation available:
-!- TISSUE SPECIFICITY: Expressed in the placenta.
-!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Event=Alternative splicing: Named isoforms=2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IsoId-P01242-2: Sequence-VSP_006203;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 isoId-p01242-1; Sequence=Displayed;
Name=2; Synonyms-GH-V2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GO; GO:0005180; F:Feptide hormone; TAS.
InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE; PS00266; SOMATOTROPIN_1; 1. PROSITE; PS00338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -!- SUBCELLULAR LOCATION: Secreted
                                                                                                                                                                                                                                                                                                                                                               MEDLINE 99321812; Pubmed-10393484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL: 003756; AABS98471; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL: J03756; AAB59548.11
EMBL: M38451; AAA35891.1; -:
EMBL: J03671; AAA52552.11 -:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Name*1; Synonyms=GH-V1;
IsoId P01242-1; Sequen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; BC020760; AAH20760.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00103; hormone; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genew; HGNC:4262; GH2.
MIM; 139240; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR: A28072; STHUV2.
PIR: D32435; STHUV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HSSP; P01241;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Polymorphism.
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                               Baumann
                                                                                                                                                                                                                                                                                                                                                 REVIEW.
```

; 0

sdeg

Ċ

```
between the Swiss Institute of Hiointermatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by con-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license aprement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    produced through a collaboration
                                                                                       N-LINKED (GLCNAC. .) (POTENTIAL).
RLEDGSPRTGQIFNOSYSKFDTKSHNDDALLKNYGLLYCFR
                                                                                                                                                   KDMDKVETFLRIVQCRSVEGSCGF -> VRVAPGIPNPGAP
LASRDWGEKHCCPLFSSQALIQENSPYSSFPLVNPPGI.SLQ
PGGEGGKWMNERGREQCPSAWPI.LELHFAEAGRWQPPDWA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Golos T.G., Durning M., Fisher J.M., Fower P.D., Coloning of four growth hormone/choriconic somatomamotropin-related complementary decoyptibonucleir acids Jifferentially expressed during pregnancy in the rhesus monkey placenta.";

Endocrinology 33:1744-1752(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOM2_MACMU STANDARD: PRI: 217 AA.
007376: Q28494:
01 NOV-1997 (Rel. 35, Created)
01 -NOV-1997 (Rel. 35, Last sequence update)
28-FER-2003 (Rel. 41, Last annotation update)
Growth hormone variant precursor (GH-V) (Placenta-specific growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FUNCTION: Plays an important role in growth control. Its major tole in stimulating body growth is to stimulate the liver and other rissues to secrete IGF. It stimulates both the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Macaca mulatra (Rhesus macaque).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrnin; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBCELLULAR LOCATION: Secreted (By similarity).
TISSUE SPECIFICITY: Expressed in the placenta.
SIMILARITY: BELONGS TO THE SOMAIOTM (IN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Z. 1911 PELSKEEDNAMERAHREHULAPITYQEPERAY LPKEQKYSFELONE 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27 PPTIPLSKLEDNAMLRARKLYGLAVDLYGEFERATILKEGKYSFIGNP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 228: DB 1; Length 217: Pred. No 1.6e-21;
                                                                                                                                                                                                                                       DLQSVLOOV (in isoform 2).
/FTId+VSP_006203.
R -> W (IN dDSNP:5389).
/FTId-VAR_014591.
I -> T (IN REF. 2).
W; 789324698E822F96 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (JAN-1994) to the EMBL/GenBank/104J databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            differentiation and proliferation of myoblasts.
      HORMONE VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                               BY SIMILARITY
BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE-Placenta;
MEDLINE-94008724; PubMed-8404617;
                                                                                                                                                                                                                                                                                                                                                           109 109 1
217 AA; 24999 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   87.7%;
(larity 91.7%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL: U02293; AAA03391.1; -. EMBL: L16555; AAA20180.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hormone) (Growth hormone 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cercopithecinae, Macaca.
   217
191
215
166
217
                                                                                                                                                                                                                                                                                                   90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIR; 167411; 167411.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
es 44, Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SECUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (1)
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                   90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCB1_TaxID+9544;
27
79
208
166
153
                         DISULFID
DISULFID
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Golos I.G.
                                                                                                                                                                                                                                                                                                                                                           CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match
                                                                                                                      VARSPLIC
                                                                                                                                                                                                                                                                                                   VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DDA RABARA RABAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

It also stimulates

```
Selby M.J., Barta A., Baxter J.D., Bell G.J., Eberhardt N.L.,
"Analysis of a major human chortonic somatomamotropin gene. Evidence
for two functional promoter elements.",
D. Biol. Chem. 259:1417-1318(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11-UUL-1986 (Rel. 01, Created)
01-APR-1988 (Rel. 07, Last squence update)
15-SFP-2003 (Rel. 42, Last samotation update)
Lactogen precursor (Chorlomammotropin) (Chorlonic somatomammotropin).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. (GENES CSH1 AND CSH2).
MEDLINE:69307277; Pubmed-2744760;
Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
Seeburg P.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "The human growth hormone locus: nucleotide sequence, biology, and evolution.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens (Human).
Eukaryota, Metazou, chordata, Craniata, Vertebrata, Eureleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. MEDLINE-83160915; PubMed-6300056; Barrera-Saldana H.A., Sceburg P.H., Saunders G.F.; Barrera-Saldana H.A., Sceburg P.H., Saunders G.F.; "Two structurally diliberent genes produce the same secreted human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The human growth hormone gene family: nucleutide sequences show recent divergence and predict a new polypeptide hormone. \vec{r}_{\rm c}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hirt H., Kimelman J., Birnbaum M.J., Chen E.Y., Seeburg P.H., Eberhardi N.L., Harta A.;
"The human growth hormone gene locus: structure, evolution, and allelic variations."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27 FPTTPLSMLFNTAVFRAHHLHKIAFOTYPKLEEAYIPKEOKYSFLRNP 74
                                                                                                                                                                                                                                                                                                                                                                                                                            ; DB 1; Length 217;
7e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Z. PPTTPL SRLFDNAMLRAHREROLAFBLYÖFFEBAY (PKEOKYSFLQNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6; Indels
                                                                                                                                                                                                                                                   BY SIMILARITY.

RY SIMILARITY.

L -> F (IN REF. 2).

E -> G (IN REF. 2).

W: 8DB1:6CRC24EA090 CRC64:
                                                                                                                                                                Hormone; Placenta; Signal; Glycoprotein.
SIGNAL 1 26 BY SIMILARITY.
CHAIN 27 217 GROWTH HORMONE VARIANT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1997
Pred. No. 7
                                                                                                          PROSITE; PS00266; SOMATOTROPIN_1; 1.
PROSITE; PS00338; SCMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PkT;
                       InterPro; IPR001400; Somatotropin. Pfam; PF00103; hormone; 1. PRINTS; PR00836; SOMATOTROPIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       placental lactogen hormone.";
J. Biol. Chem. 258:3787-3793(1983)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. (GENE CSH1).
MEDLINE-85030426; Pubmed=6208192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. (GENE CSH2).
MEDLINE*87161235; PubMed-3036680;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=83182010; PubMed-7169009;
                                                                                                                                                                                                                                                                                                                                                                      25221 MW:
                                                                                                                                                                                                                                                                                                                                                                                                                              76.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genomics 4:479-497(1989)
                                                                                                                                                                                                                                                   191
215
57
152
                                                                                                                                                                                                                           27 2
79 1
208 2
57 57
152 1
217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match
Best Local Similarity
  HSSP; P01241; 1HGU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA 6:59-70(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCB1_Tax1D-9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Seeburg P.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PI.L_HUMAN
                                                                                                                                                                                                                                                      DISULFID
                                                                                                                                                                                                                                                                                DISULFID
                                                                                                                                                                                                                                                                                                           CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEOUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLL_HUMAN
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DDDJJDDDJJDDDDJJDDDDJJDDDJJDDDJJDDDJJDDDJJDDDJJDDDJJDDDJJDDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJJDDJDDJJDDJJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDJDDDJDDDJDDJDDDJDDDJDDDJDDDJDDDJDDDJDDDJDDDJDDDJDDDJD
```

```
SOUR THE FEET THE SOUR SET THE FEET THE SOUR SET THE FEET THE FEET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation. The European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                       TISSUE-Placenta, and Oterus;

XX MEDINE-2288257; PubMed-12477932;

XX Strausberg R.L., Perngold E.A., Grouse Lin, Derge J.G.,

Strausberg R.L., Perngold E.A., Grouse Lin, Derge J.G.,

XX Aluserer R.D., Collins E.S., Wagner L., Shemmen G.M., Schale G.D.,

XX Aluserer R.D., Collins E.S., Wagner L., Shemmen G.M., Schale G.D.,

XX Aluserer R.D., Collins R., Earmer A., Rubin G.M., Hong L.,

XX Diatchenko L., Marusina K., Farmer A., Rubin G.M., Hong L.,

XX Staploton M., Soares M.B., Bonaldo M.F., Casavan T.L., Schettz F.S.,

XX And S.S., inquellano N.A., Peters G.J., Abramson R.D., Mailahy S.J.,

XX Rehards S.A., McEwan P.J., McKerna R.J., Malek J.A., Gunaratne P.H.,

XX Rehards S.A., McEwan P.J., McKerna M., Mandan A., Gay L.J., Hulyk S.W.,

XX Willalon D.K., Muzny D.M., Sodergren E.J. Lu X., Gitles R.A.,

XX Militing M., Madan A., Sodergren E.J., Dixtores S., Sanchez A.,

XX Militing M., Madan A., Sodergren E.J., Myers R.A.,

XX Militing M., Madan A., Sodergren E.J., Myers R.M.,

XX Mutcerfield Y.S.N., Krzywinski M.L., Skaiska U., Smail S.D.E.,

XX Generation and initial analysis of more than 15,000 full-length

Nour and mouse CDNA sequences."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-79173081; FubMed-438159; Schneider A.B., Kowalski K., Russell J., Sherwood L.M.; Schneider A.B., Mowalski K., Russell J., Sherwood L.M.; Jachtification of the interchain disulfide bonds of dimeric human placental lactogen.; J. Biol. Chem. 254:3782-3787(1979).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDGINE-78671761; PubMed-593368;
Shine J., Seeburg P.H., Martial J.A., eaxier J.D., Goodman H.M.;
"Constinction and analysis of recombinant DNA for human chorjonic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Li C.H., Dixon J.S., Chung D.; "Amino acid sequence of hyman choricoic sematemammetropin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sherwood L.M., Handwerger S., McLauris W.B., Lanner M.;
Nature New Hiol. 235:64-64(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 27-117.
MEDLINE-72016313: Pubmed 5286363;
Sherwood L.M., Handwerger S., McLaurin W.D., Lanner M. Amino-scala sequence of human placental lactogen.";
Nature New Biol. 233:59-61(1971).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Natl. Acad. Sci. U.S.A. 99:16899 16904(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. SUBCELLULAR LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arch. Biochem. Biophys. 155:95-110(1973).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIJINE-73201971; Pubmed-4712450;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL: V00573; CAA23836.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 50-217 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           J00289; AAA98747.1; -. K02401; AAA52115.1; -. M15894; AAA52116.1; -. J03071; AAA52551.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INTERCHAIN DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  somatomammotropin.";
Nature 270:494:499(1977);
DNA 1:239-249(1982)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SECUENCE OF 27-217.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ERRATUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Proc.
```

EMBL:

```
Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INTEATHAIN (WITH C-215 IN A DIMER).
INTEKCHAIN (WITH C-206 IN A DIMER).
P -> A (IN CSH2).
/FTId-VAR_007166.
IS -> L (IN CSH2).
/FTId VAR_007167.
I -> T (IN REF. 9).
MISSING (IN REF. 9).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Das P., Meyer L., Seyfert L.-M., Brockmann G., Schwerin M.:
*Structure of the growth Firmone encoding gene and its promoter in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota: Metazoa: Chorda a; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodent a; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                   Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4 TIPLSRIFDNAMIRAHRIHQIAFOTYQEFERAYIPKEQKYSFLON 48
                                                                                                                                                                                                                                                                                                                                                                             SDD -> BHS (IN REF. 9).
23580D07A713F431 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                  75.8%; Score 197; DB 1;
80.0%; Pred. No. 1.3e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JAN-1988 (Rel. 05, Created)
01-JAN-1988 (Rel. 05, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
58-EB-2003 (Rel. 41, Last annotation update)
641 OR GH.
                                                                                                              MIM: 150200;

GO: GO:0007565; P:pregnancy; TAS.
InterPro; IPR691400; Somatotropin.
Prim: PF00103; Sormone: 1.
PROSITE; PS00266; SOMATOTROPIN.1: 1.
PROSITE; PS00388; SOMATOTROPIN.2: 1.
HOTMORE: Placepita: Multique: family: Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                      LACTERIEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P.R.L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-96194803; PubMed-8:47448;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-85261358; PubMed-2991252;
                                                                                                                                                                                                                                                                                                                                                                                                                                           ۶.
JOULTB: AAA98621.1; -. BC002717; AAH02717.1; -. BC005921; AAH05921.1; -. BC020756; AAH20756.1; -.
                                                                                                                                                                                                                                                                                                                                                                                         25020 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
STRAIN-F2TDU; TISSUE Liver:
                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                      Genew: HGNC:2440; CSH1.
Genew: HGNC:2441; CSH2.
                                                                                                                                                                                                                                                                                                                                       84
95
116
                                                                                                                                                                                                                                                                                                               105
                                                 PIR; A26449; A26449.
PIR; C32435; LCHUC.
HSSP; P01241; 1A22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                      84
95
116
134 1
217 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                Rest Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBL_TaxID=10090;
                                                                                                                                                                                                                                                                                                               104
                                                                                                                                                                                                                                                                                                                                                                                                                                           36:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOMA_MOUSE
ID SOMA_MOUSE
                                                                                                                                                                                                                                             D1831,F11)
D1831,F11)
D1831,F11)
                                                                                                                                                                                                                                                                                                                                                   CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                   DISHIPHE
                                                                                                                                                                                                                                                                                                                                     CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                     VARIANT
                                                                                                                                                                                                                                                                                                               VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P06880;
                                                                                                                                                                                                          SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mice."
                        EMBL;
                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
```

ö

```
: XVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tissues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOMA_VUI.VU
P10766;
                                                                       DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISULFID
SEQUENCE
                                                                                                 SEQUENCE
                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                 SECUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match
                                                                                                                                                                                                                                         SCMA LOXAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOMA_VULVU
                                                                                                                                             Matches
                                                                                                                                                                                                                                                       S.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 13
                                                                                                                                                                                                                                                                                                                            GHI.
                                                                                                                                                                                           Ē
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AC DI DI DI DI DE DE DE
   DAN DAN DE LETT SO
                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as ing as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                role in stimulating body growth is to stimulate the liver and offer tissues to secrete IGF1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                         Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota: Metazoa; Chordata; Craciati: Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Cetacea; Mysticeti;
Baluenopteridae; Balaenoptora
amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                        <u>.</u>`
                    SUBCELLULAR LOCATION: Secreted. SIMILARITY: BELONGS TO THE SOMATOTROPIN/FROLACTIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -:- SUBCETLULAR LOCATION: Secreted. -:- SUBLEKLULAR LOCATION: SEMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY
                                                                                                                                                                                                                                                                                                                                            / Match 62.1%; Score 161.5; DB 1; Leugth 21 Local Similarity 68.1%; Pred. No. 3.6e-13; les 42; Conservative 6; Mismatches 8; Indels
                                                                                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                          27 FPAMPLSSLFSNAVLRAQHLHQLAAFTYKEFERAYIPEGQRYS-1QN 72
                                                                                                                                                                                                                                                                                                                                                                                              2 FPTIPLSRLFDNAMLRAHRCHQLAFDTYQEFEBAYIPKEQKYSFLON
                                                                                                                                                                                                                                                                                                                        98666A (AE25065FC CRC64)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Yudaev N.A., Pankov Y.A., Bulatov A.A., Osipova T.A., "Amino acid sequence of seiwhale somatotropin.";
Biokhimiia 47:1059-1069(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01 oct.1993 (Rel. 27, Created)
01 oct.1993 (Rel. 22, Last sequence up.1 to)
20+F67-2043 (Rel. 4). Last annotation u.date)
Somatofropis (Growth hormone).
                                                                                                                                                                                                                                                                                     SOMATOTECE N. BY SIMILAR IV. BY SIMILAR IV.
                                                                                                                                                                                                                                                                           RY SIMILAR TY.
                                                                                                                                                                                                                          Pfam, Plactor, horasine: 1.
PROSITE: PSOLZ6A; SOMATOTE GIN, L. .
PROSITE: PSOCKAB; SOMATOTEOPIN 2: ..
                                                                                                                                                                                                             TCRUOLS of Samater from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Balaenoptera borealis (Se: whale)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MFDLINE-830(0569) PubMed-7115613;
                                                                                                                                                                                                                                                                                                                       216 AA; 24716 MW;
                                                                                                                                                   EMBL: X02891; CAA26650.1; -. EMBL: 246663; CAA86658.1; -.
                                                                                                                                                                                                                                                             Hormone, Pituitary, Signal,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR: PN0140; PN0140.
                                                                                                                                                                          PIR; B23911; STMS.
HSSP; P01246; 1831.
MGD; M31:95707; Ch.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI 14×10-9768;
                                                                                                                                                                                                                                                                                     27
78
206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOMA_BALBO
P3.1692;
                                                                                                                                                                                                                 Interfrass
                                                                                                                                                                                                                                                                                                DISHEFID
                                                                                                                                                                                                                                                                                                                                               Ouery Match
                                                                                                                                                                                                                                                                                                             DISHLFID
                                                                                                                                                                                                                                                                                                                        SECUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SECUENCE
                                                                                                                                                                                                                                                                          SIGNAL
                                                                                                                                                                                                                                                                                                                                                             Best Lond
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOMA_BALBO
                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 11
```

```
:
                                                                                                                                                                                                                                                   ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Loxodonta africana (Atricar elephant).
Washaryou, metazoa, Chordatu, Craniuta, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Proboscidea, Elephantidae, Loxodonta,
NCBI_Tax10-9785,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
                                                                                                                                                                                                                                                   -4
                                                                                                                                                                                                        61,7%; Score 160,5; DB 1; Length 190; 68.1%; Pred. No. 4.1e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1; Length 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          +1- SUBSELLUIAR ENCALTEN: Secreted.
-1- SUBSELLUIAR ENCALTEN: SOCIETABLIN/PROLACTIN FAMILY.
-1- SIMILARITY: BELONGS TO THE SOCIATIN/PROLACTIN FAMILY.
BISSP: P01246; 1827.
BISSP: P01246; 1827.
                                                                                                                                                                                                                                                                                                                2 FPTIPLSRLFDNAMLRAHELHQLAFUTYQEFERAYIPKEQKYSFLQN 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred, No. 4.1e-13;
Fred, No. 4.1e-13;
Fred, Nismatches 8; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 FPT I PLISKLEDNAMLRAHRLHQLAFDTYGEFEEAY I PKEOKYSFLON
                                                                                                                                                                     09FBFF6DB14A75D6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BY SIMILARITY.

BY SIMILARITY.

05H8608130B741F2 (1RC64).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61.3%; Score 159.5; DB 1
68.1%; Pred. No. 5.5e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-JUL-1989 (Rel. 11, Created)
01-JUL-1989 (Rel. 11, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Somatotropin (Growth hormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-1991 (Rel. ?, Last sequence update)
28-FEB-2003 (Rel. . Last annotation update)
                                                                                                                           BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                 6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6; Mismatches
HSSP; F01241: 1AXI.
InterPro: JPR001400: Somatol.ropin.
Pfam: PF00103: hormone: 1.
PROSTIE: PS00266: SOMATOTROPIN_1: 1.
PROSTIE: PS00338: SOMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro: PPOG1400; somator:opin.
Pfam: PF00103; hormone: 1.
PROSITE: PS00266; SOMATGTROFIN_1: 1.
PROSITE: PS00338; SOMATGTROPIN_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                       ERT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEH-1991 (Rel. 17, Created)
                                                                                                                                                                   190 AA: 21835 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    190 AA; 21761 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Somatetropin (Growth Lormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rest Local Similarity 68.1
Matches 32; Conservative
                                                                                                                                                                                                                                               32: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARDO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIANDARD:
                                                                                                                         16.4
188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hormone; Pituitary.
                                                                                                      Hormone; Pituitary.
                                                                                                                                                                                                                               Best Local Similarity
                                                                                                                           5.2
180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
```

```
Ξ
                                                                                                                                                                                                 van Leeuwen I.S., Teske E., van Garderen E., Rutteman G.R., Moi J.A.; "Extrapituitary growth hormone expression in the dog is initiated at the normal pituitary transcription start site in the mammary gland and at multiple upstream sites in lymphoid cells."; Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-94266166; Pubmed-H206387;
Ascario-Martinez J.A., Barrera-Saldana H.A.;
"A dog growth hormone cDNA codes for a mature protein identical to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-Mammary gland;
MabCi,NE-99337113; PubMed-10411306;
Lantinga-van Leeuwen I.S., Oudshoorn M., Mol J.A.;
Lantinga-van Leeuwen I.S., Oudshoorn M., Mol J.A.;
"Canine mammary growth hormone gene transcription initiates at the pituitary-specific start site in the absence of Pit.1.";
                     Vulpes vulpes (Red fox).
Fukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Vulpes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Carnivora, Fissipedia, Canidae, Canis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DH 1; Length 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY: BELGINGS TO THE SOMAL OF PLINZEROLARITIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 FPTIPLSRLFDNAMLRAHRIHQLAFDTYOEFERAYIPKEOKYSFLON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14F37B9C1CBB802C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61.3%; Score 159.5; DB 1
68.1%; Pred. No. 5.5e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOMA_CANFA STANDARD: PKT; 216 AA. P33711: 091276; 1 10 091276; 1 10 091276; 1 10 091276; 1 10 091276; 1 10 001 28. Created) 16 001 2001 (Rel. 40, Last sequence . date) 28 FFB 2003 (Rel. 41, Last annotation: protect some contropin precursor (Growth hormome) (GH OR GH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BY SIMILARITY
BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00103; hormone; 1.
PROSITE: PS00266; SOMATOTROPIN_; 1.
PROSITE: PS00338; SOMATOTROPIN_2; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (1) SUBPECTAL AR LOCATION, Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSSP; F01246; 18ST.
InterPro: 1PR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                190 AA: 21731 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 68.1
Matches 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gene 143:277-280(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Canis familiaris (Dog)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hormone: Pituitary.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pig growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                 NCBI_TaxID-9627;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCB1_Tax1D=9615;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         t issues
                                                                                                                                                                            SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DISHIFTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISCLETO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SECUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match
REPRESENTATION OF STATE OF STA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            င်
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to licensewisb-sib.ch).
                              role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Warren W.C., Bentle K.A., Bogosidn G.; "Cloning of the cDNAs coding for cat growth hormone and prolactin."; Gene 168:247-249(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE-Pituitary:
PEDILNE-95369713, pubMed-7642118;
Castro-Peralta F., Barrera-Saldana H.A.;
Castro-peralta F., Barrera-Goldana H.A.;
Cloning and sequencing of cDNA encoding the cat growth hormone.";
Gene 160:311-312(1995).
Mol. Cell. Endocrinol. 150:121–128(1999).
-!- FUNCTION: Plays an important role in growth control. Its major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Felis silvestris catus (Cat).
Eukaryota: Metazoa; Chordata; Cramiata: Vertebrata: Euteleostomi,
Mammalia: Eutheria: Carnivora; Fissipedia: Felidae; Felis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 159.5; DB 1; Length 216;
Pred. No. 6.3e-i3;
                                                                                                                                  -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27 FPAMPLSSLFANAVLRAGHUHQLAADTYKEFERAYIPEGGRYS-1ON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYJEFEEAY1PKEQKYSFLQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A8A01D059F1DAAED CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOMATOTROPIN.
BY SIMILARITY.
S YS G (IN REF. 1).
N -> T (IN REF. 1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1995 (Rei. 32, Created)
01-NOV-1995 (Rei. 32, Last sequence update)
28-FEB-2003 (Rei. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Somatotropin precursor (Growth hormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE: PS00266; SOMATOTROPIN_1: 1. PROSITE; PS00338; SOMATOTROPIN_2: 1.
                                                                                                                  -!- SUBCELLULAR LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                         HSSP; P01246; 18ST.
InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE=Pituitary;
MEDLINE-96194906; PubMed~8654953;
                                                                                                                                                                                                                                                                                                                                                                                                        Piam; PF00103; hormone; 1.
PRINTS; PR00836; SUMATOTROPIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  216 AA; 24468 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61.38;
                                                                                                                                                                                                                                                                                                                                       EMBL: AF069071; AAD43366.1;
                                                                                                                                                                                                                                                                                                       EMBL: 224067; CAA80601.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hormone, Pituitary, Signal SIGNAL 1 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      32; Conservative
                                                                                                                                                                                                                                                                                                                         092543; AAF21502.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD:
                                                                                                                                                                                                                                                                                                                                                         PIR: 146145: 146145.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     [2]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID :9685;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOMA_FELCA
P46404;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DISCLETD
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOMA_FELCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      â
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL cutstation the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/of send an email to license*lisb-sib.ch).
FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete [GF-1. It stimulates both the differentiation and proliferation of injublasts. It also stimulates amino acid uptake and protein synthesis in muscle and other tissues. Subcriticlar LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61.3%; Score 159.5; DB 1; Length 216; 68.1%; Pred. No. 6.38-13;
Live 6; Mismatches 8; Indels 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 FPTIPLSRLFONAMLRAHRLHQLAFDTYGEFEEAYIPKEQKYSFLQN 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BY SIMILA Y.
SOMATOTR 1.
BY SIMILA. Y.
BY SIMILA. TY.
N -> T (1 REF. 2).
T -> A (1.0 REF. 2).
T -> A (1.0 REF. 2).
L -> P (10 REF. 2).
L -> P (10 REF. 2).
W. 05820239A7D292C6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Interpro, FR001400; Somatestropin, Plan, PP00103; hormone; L. PP0011E; PS00266; SOMATOTROPIN_1; PR0SITE; PS00338; SOMATOTROPIN_2; L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27 26
27 216
78 214
7 2 26
159 (...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hormone: Pituitary: Signal.
SIGNAL 1 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL: 025973; AAA57294.1;
EMBL: 013390; AAA95142.1;
PTR: 304632; 004632;
HSSP: P01246; TBST:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26
159
181
216 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 32; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27
78
205
7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DISULEID
DISULEID
CONFLICT
CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
          $\circ$ \circ$ \
```

27 FPAMPLSSLFANAVLRAQHIJAQILAADTYKEPERAYIPEGGRYS-1ON 72

Search completed: September 15, 2003, 12:01:29 Job time : 5.56631 secs

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

OM protein - protein search, using sw model

September 15, 2003, 11:54:30; Search time 19.1434 Seconds (without alignments) 660.520 Million cell updates/sec Run on:

Title: Perfect score:

US-09-423-100-1 260 1 MFPTIPLSRLFDNAMLRAHR......QEFEEAYIPKEQKYSFLQNP 49

BLOSUM62 Scoring table: Sequence:

830525 seqs, 258052634 restidues Searched:

Gapop 10.0 , Gapext 3.5

830525 Total number of sits satisfying chosen parameters:

Length: 0 length: 200000000 Minimum DB seq Maximum DB seq Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database

sp_virus:*
sp_vortebrate:*
sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:* sp_invertebrate:*
sp_mammal:*
sp_mhc:* sp_organelle:* sp_archea:* sp_bacteria.* sp_rodent:* sp_phage:* sp_plant:* sp_fungi:* sp_human:* SPTREMBL_23:* 9.

Pred, No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Resu

Description	Q8wnc0 ateles geof	Ol4644 homo sapien	Q07368 macaca mula	Q07367 macada mula	QU7369 macaca mula	Q14407 homo sapien	Q8wnd9 ateles gent	Q8m:74 callithrix	070615 spalax leuc	Q9tv91 equus cabal	O8mi73 delphinus d	08hye5 ailuropoda	O9r2c3 mus musculu	Q9jkm4 cavia porce	095mj5 tarsius ban	Q95205 ovis aries
110	ORWNE	014644	007 158	007367	907369	014407	6gmmbb	Q8M174	070615	091791	Q8M173	QSHYES	Q9R2C3	Q9JKM4	Q95MJ5	095205
:	(Q)	₹	ري	9	9	4	9	9	Ξ	9	ç	9	Ξ	Ξ	9	9
ouery Match Length DB	217	245	2:2	217	217	217	217	217	216	52	216	216	216	216	178	204
Ouery Match	9.5°	87.7	81.9	81.9	77.3	75.8	75.0	65.4	61.7	61.3	61.3	61.3	8.65	59.2	58.5	57.5
Secre	74.3	228	2:4	213	701	161	145	170	160.5	159.5	159.5	159.5	155.5	154	152	149.5
ult No	-	1	~	7	ی	ټ	۲	သ	J) I C	Ξ	13	13	14	15	16

0

245 AA

PRT;

PRELIMINARY;

014644 014644;

RESULT 2 014644 ID 01464 AC 01464

O14643 homo sapien O95mj6 tarsius syr O9jkgO cavia porce O9tu2l capra hircu O9qwy bos indicus		091386 amia calva 095240 canis famil 014406 homo sapien 089485 anser anser 019034 ovis aries	C46474 Telis silve P78451 homo sapien Q8qtm8 Clarias bat U9bdr4 galago cras U4qqj] heteropneus U4qqil telropneus	ciarias silurus carassiu cirrhinu carassiu carassiu
4 014643 6 095MJ6 11 09JKG0 6 09TU21 6 09TW9	b Q8M1/5 6 Q28957 6 Q9BEB9 6 Q9TR19 13 Q9PU72	13 Q91386 6 Q95240 4 Q14406 13 Q8QG85 6 J19034	6 - 046474 4 P78451 13 - 060FM8 6 - 098FM4 6 - 098FM4 13 - 080GJ1 13 - 080FN2	13 09PRF5 13 090283 13 090283 13 090W26 13 090W27 13 096W27
202 178 190 192	217 217 217 217 40 218	1955 143 199 63 53	55 167 200 145 200 200	200 500 1888 1888 1888
00000000000000000000000000000000000000	533.3 533.3 52.3 50.7 8	49.2 47.5 46.9 41.2	2 x x x x x x x x x x x x x x x x x x x	ေတြသည္။ ၁၀၀၀ နာရမ္မေတြသ -သူလိုက်လိုလ်လိုလ်
147 146 144 143.5 142.5	141 138.5 138.5 138.5 137 132	123.5 123.5 122 119	401 401 400 400 400 400 400 400 400 400	99,0 90,0 90,0 90,0 90,0 90,0 90,0 90,0
17 18 19 20 21	22222 2632 2632 2632	28 32 32 37	# # & & F & & & & & & & & & & & & & & &	0.044444 0.0011911440

ALIGNMENTS

Ateles geoffroyi (Black-handeu spider monkey). Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Platyrrnini; Gebidae; Atelinae; Ateles. NCBI_TaxID=9509; Gaps 0 Revoi A., Esquivel D., Santiago D., Barrera-Saldana H.;
Revoi A., Esquivel D., Santiago D., Barrera-Saldana H.;
Independent duplication of the growth hormone gene in three
Anthropoidean lineages.'
Submitted (APR-2001) to the EMBL/GenHank/DDHJ databases.
EMBL. AR74244, AAL72286.1;
InterPro; IPR051400; Somatotropin.
Ptam: PF00103; bormone; 1.
PROSITE, PS00266; SOMATOTROPIN_1; 1.
PROSITE, PS00348; SOMATOTROPIN_1; 1.
SEQUENCE 217 AA: 24894 MW: 425829F41EEAAE6 CRC64; 2 FPTIPLSRLFDNAMLRAHRLHQLAFUTYQEFEEAYIPKFUKYSFLQNP 49 27 FPTIPLSRLLDNAMLRA KLHQLAFOTYĢEFERAYIPKEGKYSFLQNP 74 Ouery Match 95.8%, Score 249; UH 6; Length 217; Best Local Similarity 97.9%; Pred. No. 1.2e+25; Matches 47; Conservative 0; Mismatches 1; Indels 01-MAR-2002 (TrEMBLrel. 20, Created) 01-MAR-2002 (TrEMBLrel. 20, Last sequence update) 01-MAR-2003 (TrEMBLrel. 23, Last annotation update) 217 AA PRT; PRELIMINARY; Growth hormone. OBMM80 RESULT 1 OBWNEO ò op Op

us-09-423-100-1.rspt

```
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        007369;
                                                    007367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             007 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 5
Q07369
                             RESULT 4
                                        007367
                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Golds T.G. Durning M., Fisher J.M., Fowler P.D.,
"Cloning of four growth hormone/chorisonic somatomagnotropin-related complementary decyythbonucleic acids differentially expressed during prequancy in the rhesus monkey placenta.",
Endocrinology 18:1744-1752[1993].
EMBL. [1653]. AAA18840.1;
                                                                                                                            TISSUE Term placenta:
MEDLINE-9837373; PubMed-9709963;
Boquszewski C.L., Svensson P.A., Jansson T., Clark R.,
Carlsson L.M.S., Carlsson B.;
"Cioning of two novel growth hormone transcripts expressed in human
                                                         Homo sapiens (Human).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota: Metazoa: Chordata: Craniata: Vertebrata: Eureleostemi:
Mammalia: Eutheria: Primates: Catarrhiui: Cercopithecidae:
                                                                                                                                                                                                                                                                                                                                             ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ..
                                                                                                                                                                                                                                                                                                                                                                 2 PPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLUNP 49
                                                                                                                                                                                                                                                                                                                                                                             FP7.PLSRLFDNAMLRARRLYQLAYDTYQEFEBAY1..KEQKYSF1.QNP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23 PSVPLSRLFDHAMIQAHRLHQLAFDTYQEFEEAYIPKEKKHSLMENP 69
                                                                                                                                                                                                                                                                                                                   87.7%; Score 22%; DB 4; Length 245; 91.7%; Pred, No. 9.5e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81.9%; Score 213; DB 6; Length 212; 78.7%; Pred. No. 8.7e-21; Live 9; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                            2: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP
                                                                                                                                                                                                                                                                                                                                                                                                                                              007368 PRELIMINARY; PRT; 212 AA.
007368; Ol WOV 1996 (TEMHLFE]. 01. Created)
01-NOV-1996 (TEMHLFE]. 01. Last sequence update)
01-NOV-1996 (TEMHLFE]. 23. Last annotation update)
Somatorropin 2 procursor (Growth hormone 2) (Fraqment).
Maraca nutatta (Rhesus macaque).
                                                                                                                                                                                                                                                                                             14CC7F8CD75D91C8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SPUGENCE 212 AA; 24525 MW; 27BC9110A256E6F5 CRC64;
 0: JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-DRC-2001 (TrEMBLrel. 19, Last annotation update)
Placental growth hormone isoform hGH-v3 precursor.
                                                                                                                                                                                    2: Mismatches
                                                                                                                                                                                                                                                                                   POTENT: AL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pram: PF00103; hormone; 1, PROSITE; PS00338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                           PROSTIE: PSD0266; SOMATOTEOGIN_1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro: IPR001400; Somatctropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-94008724; PubMed-8404617;
                                                                                                                                                                                                                                                                                            SEQUENCE 245 AA; 27101 MW;
01-JAN-1998 (TrEMBLrel. 05, 01-JAN-1998 (TrEMBLrel. 05, 01-DEC-2001 (TYEMBLrel. 19,
                                                                                                                                                                                                                                                Pfinn: Proofest hermone: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 78.78
Matches 37: Conservative
                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cercopithecinae; Macaca
                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SECUENCE FROM N.A.
                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_Tax:D=9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE-Placenta:
                                                                                         NCBI_TaxfD-9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HSSP; P01241;
                                                                                                                                                                                                                                                                                                                                           ..
**
                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                 Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NON TER
                                                                                                                                                                                                                                                                       Signal
                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                      007368
  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                  င်
```

```
TISSUE-Midproquancy placenta;
MEDLINE-94008724; PubMed-84046.7;
Solos F.G., Durinfor M., Fisher L.M., Fow.er P.D.;
Solos F.G., Durinfor M., Fisher L.M., Fow.er P.D.;
Closina of Lour quawk Loorest-Velsifonic senditional most register growth correst-Velsifonic senditional complementary decaytikonacless acids differentially expressed during prequancy in the ricesus monkey placenta.";
Productinglogy 143-1752(1993).
EMBL: LI65522, AAA18439.1;
HSSP: P01241: [AXI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE-Midpregnancy placenta; MEDLINE-94008724; PubMed-8404617; MEDLINE-94008724; PubMed-8404617; MCOLOS T.G., Durning M., Fisher P.D.; Cloning of tour growth hormone/chorinoic somatomammotropin-related complementary deoxyribonucleic acids ditterentially expressed during pregnancy in the rhesus monkey placenta."; programacy in the rhesus monkey placenta."; EMBL; L16554: AAA1844-1752(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                Eukaryota, Metazoa, Chordata, Cranjata, Vertebrata, Euteleostomi;
Mammalia, Eutheria, Primates, Catarrhini, Cercopithecidae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota, Metazoa, Chordata, Cramiata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Cercopithecidae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28 PSVPLSRLFUHAMIQAHRIHQIAFDTYQEFEEAYIPKEKKHSLMENP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFERAYIPKEQKYSFLÖNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24942 MW; FF5AA8915131F2BC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24874 MW; FIEB6AFDBBAIB185 CRC64;
                                                                                    01-NOV-1996 (TIEMBLEEL 01, Last sequence update)
01-MAR-2003 (TIEMBLEEL 23, Last annotation update)
Chorronic somatomammotropin-1.
Macaca muiatta (Rhesus macaque).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-NOV-1996 (TrEMBLrel. 01, Last sequence update) 01-MAR-2003 (TrEMBLrel. 23, Last annotation update) Chorionic somatomammotropin-3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81.9%; Score 213; DB 6;
78.7%; Pred. No. 9e 21;
live 9; Mismatches 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     77.3%; Score 201; DB 6; 74.5%; Pred. No. 3.8e-19;
217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1996 (TrEMBLrel, 01, Created)
                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00103; hormone: 1.
PROSITE; PS00266: SOMATOTROPIN_1: 1.
PROSITE; PS00338: SOMATOTROPIN_2: 1.
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR001400; Somate ropin.
Pfam; PF00103; hormone; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Macaca mulatta (Rhesus macaque)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOMATOTROPIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRINTS: PRO0836: SOMATCTROP N. PROSITE; PSO0338; SOMATCTROPIN SEQUENCE 217 AA; 24542 MW;
                                                    01-NOV-1996 (TrEMBLrel, 01,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 78.7
Matches 37, Conservative
PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY.
                                                                                                                                                                                                                                                                              Cercopithecinae: Macara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cercopithecinae; Macaca,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          217 AA;
                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                           NCB:_TaxID-9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_Tax ID-9544;
```

·;

```
tocal Similarity
hes 32: Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=9483;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-AUG-1998 (
01-AUG-1998 (
01-MAR-2003 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08M174
08M174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     070615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 9
070615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08M174
      QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                습
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ÷
                                                                                                                                                                                                                            01.NGV-1996 (TrEMBLrel. 01, Created)
01.NUV-1996 (TrEMBLrel. 01, Last sequence update)
01.NAR-2003 (TrEMBLrel. 03, Last sentotation update)
Chorionic somatomammotropin CS-2 (Chorionic somatomammotropin horscare
                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-89307277; PubMed-2744760;
Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
Seeburg P.H.;
    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FEBM N.A.
MEDLINE-91102558; PubMed-1980158;
Vaencak-Jones C.L., Phillips J.A. 111.;
**Bot spots for growth hormone gene deletions in homologous regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The human growth hormone locus: a.e.e. ide sequence, biology, and evolution.".
                                                                                                                                                                                                                                                                                                                                                Eskaryela: Metazza; Chordata; Croisian; Verrorisata; Estolo stemn.
Mammalla, Fotheria: Primates: Ceranicus; Gerbidae, Hemo
  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           :
:
                                      3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
                                                                75.8%; Score 1-7; CB 4; Length 217;
80.0%; Pred. No. 1.50-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4 TEPESKLFONAMERAHREHQUAFOTYOFFERAYIPKFOKYSFION 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4: Indels
    4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Strougherd R.:
Schmitted (JUL-2002) to the EMBL/GenBank/RUBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (JAN-2002) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Inferror consolinations 1.
Primis Produkt, Somatorropin,
PROSTER PSUQ266, SOMATORROPIN,
PROSTER PSUQ266, SOMATORROPIN,
PROSTER PSUQ266, SOMATORROPIN, 1.
PROSTER PSUG 58; SOMATORROPIN, 2. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                       217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5; Mismateres
8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro: IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    outside of Alu repeats.";
Science 250:1745-1748(1990).
                                                                                                                                                                                                                         01-NGV-1996 (TrEMBLrel. 01, 01, NGV-1996 (TrEMBLrel. 01, 01-MAR-2003 (TrEMBLrel. 23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL, JU3071; AAAS2553.;
EMBL, H1022044; AAH22044.);
EMBL, H1035965; AAH35965.];
HSSP; P01241; 1A22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-MAR-2002 (TrEMBLrel. 20, 01-MAR-2002 (TrEMBLrel. 20, 01-(XTY-2002 (TrEMBLrel. 22,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity 80.0 Matches 46, Conservative
35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genomies 4:479-497(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                              2).
Home sapiens (Buman).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE PROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE PROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                         NCB1_Tax t0 -9506;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE-Placenta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-Placenta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Growth hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Strausberg R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60NM80
Matches
                                                                                                                                              RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60NM80
                                                                                                                                                                 014407
                                                                                                                                                                                       A PART OF REPARED TO THE PROPERTY OF THE PROPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1D
PT
DT
DT
                                           ò
```

```
ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota: Metazoa; Chordata: Craniata; Vertebrata; Euteleostomi:
Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callithrix.
Ateles geoffroyi (Black-handed spider monkey).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Futeleostomi;
Mammalia: Eutheria; Primates; Platyrrhini; Cebidae; Atelinae; Ateles.
NCBI_TaxID-9509;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. Walls M.:
Wails O.C., Walls M.:
"Characterisation of the GH gene cluster in a new-world monkey, the marmoset (Callithrix Section).":
J. Mol. Endocrinol. 0:0.0(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                               SEQUENCE FROM N.A.

Revol A., Esquivel D., Santiago D., Harrera-Saldana H.;

Independent duplication of the growth hormone gene in three
Anthropoldean lineages.",

Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.

EMBL, AFRASS, AAL72287.1;

FILITEPPO. IPROD1400; Somatotropin.

PFO0103; hormone: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 PTIPLSRLFDNAMLRAHRLHULAFDTYOFFEEAYIPKFUKYSFLUNE 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GROWTH HORMONE LIKE PROTEIN 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 FPFIPLSRF TONAMLRAHREHOLAFDTYQEFEEAYIPKEUKYSFLCNP
                                                                                                                                                                                                                                                                                                        PRINTS; PRO0836; SOMATOTROFIN,
PROSTITE; PS00266; SIMATOTROFIN 1; i.
PROSTITE; PS05338; SIMATOTROFIN 1; i.
SECREXIF; 217 AN; 25233 MM; 741745A1875A188 PMC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5ECF148798278F1A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65.4%; Score 170; DB 6; i.e. 65.4%; Score 170; DB 6; i.e. ered; No. 6:10:15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                          75,0%; Score 195; FB 6;
77,1%; Pred. No. 2.5e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Growth hormone-like protein 6 precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Callithrix jacchus (Common marmoset).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS; PR00836; SOMATOTROPIN.
PROSITE; PS00338; SOMATOTROPIN_2; ;.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMHL, AJ489811; CAD34012.1; ...
InterPro; IPR061409; Somatotropin.
Pfam: PF00103; hormone: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN 27 217 G
SEQUENCE 217 AA: 25177 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-OCT-2002 (TrEMBLEL, 22, 01-OCT-2002 (TrEMBLEL, 22, 01-MAR-2003 (TrEMBLEL, 23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (TrEMBLrel. 07, (TrEMBLrel. 07, (TrEMBLrel. 23,
                                                                                                                                                                                                                                                                                                                                                                                                                   Obery Match
Bost Local Similarity 77.14
Matches 37: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     217
```

```
TISSUE LIVER;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIGNA:
SEQUENTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                           Delphinus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OBHYES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAYES
         ACCOCCOS NO CONTRACTOR NO COCCOS NO 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sdep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Caps
                                                                                                                                                                               MEDLINE-99124645: PubMed+9924177;
Libupis A., Nevo E., Wallis M.;
"Cloning and characterisation of the gene encoding mole rat. (Spalax
ehrenbergi) growth hormone.":
J. Mol. Endocrinol. 22:29-36(1999).
EBBIS, ANDOGRIP; CANO6716.1; ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDILNE: 99160468; PubMed 10051424;
Charlano A.R., Pomp C., Murray J.D., Howing A.T.;
"Comparative mapping of 18 equine type I genes assigned by somatic
cell hybrid analysis.":
                Spalux leucodon ehrenbergi (Ehrenberg's mole rat).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota, Metazoa, Chordata, Craniatu, Vertebrata, Eufeleostomi,
Mammalia, Eutheria, Perissodactyla, Equidae, Equus,
NCBL_Taxlo+9796;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 61.7%: Score 160.5: DB :1: Length 216; Best Local Similarity 68.1%: Pred. No. 1.20 13: Matches 42: Conservative 6: Mismatcher 8: Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OB 6: Length 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22 FPAMPLSNLFANAVLRAGH HOLAACTYKEFERAYTPEGORYS-10N 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYGEFEEAYIPKEGKYSFLQN 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAL 1 26 POTENTIAL.
CHAIN 27 226 GROWTH BUSIN-NE.
SEQUENCE 216 AA; 24627 MW; EEABBASL28BAOADFF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52 AA; 5835 MW; 20A9P9EN 39P9BEA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01 MAY-2000 (TrEMBLrel. 13, Created)
01 MAY 2600 (TrEMBLrel. 13, Last sequence update)
01 MAR 2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 154.5; 38.6;
Pred. No. 5.2e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      52 AA
                                                                                                                                                                                                                                                                                                                                                                                       PRINTS: PRODUCT SUMMITTED IN.
PROSTE: PSOUTCH; SUMMITTED FOR IT.
PROSTE: PSOUTCH; SUMMITTED FOR IT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro: IPR001400; Somatotropin.
Pfam: PF0101: hormone: 1.
NON_TER 1 1 1
                                                                                                                                                                                                                                                                                                                                            InterPres (PRO01460) Somatofrogin,
Pram, Product hormone, 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Maint, Genome 10:271-276(1999).
EMBL: AF097589; AAD25992.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61.38;
68.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Growth hormone (Fragment).
GH.
Equus caballus (Horse).
Growth hormone precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             focal Similarity
os 32: Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEUCENCE FROM N.A.
                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HSSP: PO1241: 1HGU
                                                                                                              NCBI_TaxID=30637;
                                                                                           Nannospalax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
SPOUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         160160
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 167720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         09TV91
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
```

```
Delphinus delphis (Saddleback dolphin) (Black sea dolphin).
Bukaryota: Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia: Eutheria: Cetarliodactyla; Cetacea: Odontoceti: Delphinidae;
                                                                                                                                                                                                                                                                                                                                                                                                          Maniou 2., Wallis 0.0., Wallis M., "Clouina and characterisation of the dH gene from the characterisation of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ailuropoda melaioleuca (Giant panda).
Skafryota: Metaxoa, Chordata: Craniata: Vertebrata; Euteleostomi;
Mammalia: Euthoria: Carnivora: Fissipedia: Ursidae: Alluropoda.
NCRL_laxID:9646:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 6; Length 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 6; Length 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-Pituitary;
Liao M., Zhu M., Zhang A.;
Alloning and expression of CDNA encoding growth hormone from
Alluropoda melanoleuca.";
Submitted (AUG-2002) to the EMBL/GenBank/DDHJ databases.
EMBL; AF$40936; AAN77228.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27 FPAMPLSSLFANAVLRAQHI.HGI.ADTYKEFERAY1PFGQRYS-1QN 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 FPTIPLSRLFUNAMLRAHALHQLAFUTYQEFEEAYIPKEQKYSFLON 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 FPTIPLSRLFUNAMLRAHRIHQLAFDTYQEFEEAY;PKEOKYSFLQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Delpt. n is delphis). Problem of the on section one of Submitted (Jun 2012) to the EMSE/Akenennk/Jawl Jatabases. EMBL; A3492191; CAD37292.);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27 216 GROWTH HORMONS.
216 AA: 24509 MW, 1EC467A84CCFFH02 CR:64:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 26 POTENTIAL.
216 AA: 24.883 MW; 44EC17EC44BCHU56 CRC64;
OBMI73 PRELIMINARY; PRT; 216 AA. 08M173. 101-OCT 2002 (TrEMELrel. 22, Created) 01-OCT-2002 (TrEMELrel. 22, Last sequence update) 01-OCT-2003 (TrEMELrel. 23, Last annotation update) Growth hormone precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAK-2003 (TrEMBLrel, 23, Last sequence update)
01-MAK-2003 (TrEMBLrel, 23, Last annotation update)
Growth hormone precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Match 51.3%; Score 159.5; ER 6; Local Similarity 68.3%; Pred. No. 1.6e 13; es 42; Conservative 6; Mismatches 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.6e 14;
thes 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 1.6e
6: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61.3%; Score 159.5;
68.3%; Pred. No. 1.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE: PS00266; SOMATOTROPIN_1: 1. PROSITE: PS00338; SOMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OBHYES:
01-MAR-2003 (TrEMBLrel, 23, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterFro: IPRU91406; Somato'ropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00103; Hormone; 1.
PRINTS; PR00836; SOMATOTROPIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 68.3
Matches 32, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26
216
                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                    NCB1_TaxID=5728;
```

÷

÷

RESULT 13

RESULT 11 Q8M173

```
NON_TER
NON_TER
SEQUENCE
RESULT 15
Q95MJ5
                                                                                    SO OF THE PROPERTY OF THE PROP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Rodentia, Hystricogns, hi; Caviidae, Cavia.
NCBL_Tax1D-10141;
                                                                                                                                                                                                                                                 Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutoleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
NCBI_TaxiD*10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
Nauyen T.N.K., Liebhaber S.A.;
"Mouse Growth Hormone Locus: Nurieotide Sequence and Phylogenetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 11; Length 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59.2%; Score 154; DB 11; Length 216;
ilarity 67.4%; Pred. No. 8.9e-13;
Conservative 5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQ. · EEAYIPKEQKYSFLQN 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Odorico D.M., Fuller P.J., Herington A.<sup>A.</sup>; "Cloning and sequence of quinea pig growth hormone (GH)."; Submitted (FEB-2000) to the EMBL/GenBank/DDBJ databases. EMBL AF238853; AAF36409.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6e-13;
es 9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Analyses.":
Submitted (AUG-1995) to the EMRE/Scorkack/ RG databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                536B18 CRC64:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27 216 GROWTH HORMONE,
216 AA: 24822 MW: 45996BE119B08DD3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09JKM4:
01-00T-2000 (TrEMBLrel. 15, Created)
01-00T-2000 (TrEMBLrel. 15, Last sequence update)
01-0M-2003 (TrEMBLrel. 23, Last annotation update)
Growth hormone precursor.
Cavia porcellus (Guinea pig).
                                                                                        01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update).
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Growth hormome.
                                      216 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 215 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery Match 59.8%; Score 156
Best Local Similarity 66.0%; Pred, No 6e
Matches 31; Conservative 6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRINTS: PROUB'S, SOMATOTROPIN, PROSITE: PS00266; SOMATOTROPIN_1; 1. PROSITE: PS00338: SOMATOTROPIN_2; 1.
                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro: IPR001400; Somatotropin.
Pram: PF00103; hormone; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro: IPR001400; Somute ropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL: U34362; AAC99988.1;
HSSP: P01241: 1AX1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY:
                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
es 29, Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSE: PG1241: 1AXI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Signal
                                      09R2C3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 14
09JKM4
Q9R2C3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCOS OCT DESTRICT OF THE SET OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
```

```
ó
                                                                                                                                                                                                                                                                                          MEDLINE-21265430; PubMed-11371562;
Liu J.C., Makova K.E., Adkins R.M., Gibson S., Li W.H.;
"Episodic Evolution of Growth Hormone in Primates and Erergence of the
Species Specificity of Human Growth Hormone Evoeptor.";
Most Biol. Evol. 18945-95 (2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                          01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Growth hormone (Fragment).
Tarsius bancanus (Western tarsier) (Horsfield's tarsier).
Eukaryota, Mctazoa; Chordata; Craniata: Vertrebrata; Buteiecstomi;
Mammalia: Eutherla: Primates: Tarsii, Tarsiidae; Tarsius.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              58.5%; Score 152; DB 6; Length 17 65.1%; Pred, No. 1.3e 12; ative 8; Mismatches 7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 FPI 1PLSRLFONAMURAHRIHQLAFUTYQEFEEAY 1PKFOKYS 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20038 MW: F678087512F9H7FG CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Search completed: September 15, 2003, 12:03:27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRINTS: PRO0836; SOMATOTROPIN, PROSITE; PSO0266; SOMATOTROPIN_1; 1.
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro: IPRG0400; Somatotropin.
Pfam: PF00103; hormone: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 65.1%
....nhes 28. Conservative
PRELLIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       178 1
178 AA;
                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Job time : 22.1434 secs
                                                                                                                                                                                                                   NCB1_TaxID-9477;
```

```
Human anti-angioge
Chimeric protein,
Human growth hormo
Human growth hormo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human anti-angloge
Human nerve growth
Human growth hormo
Fusion protein of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human growth hormo
                                                                                                                                            September 15, 2003, 11:44:15; Search time 64.6308 Seconds (without alignments) 225.942 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Side | State | State
                                                                                                                                                                                                                                                                                                       35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /SIBSI/gcgdata/geneseq/geneseqp-embi/AA2000.BAT:
/SIBSI/gcgdata/geneseq/geneseqp-embi/AA2001.BAT:
/SIBSI/gcgdata/geneseq/geneseqp-embi/AA2002.BAT:
/SIBSI/gcgdata/geneseq/geneseqp-embi/AA2003.BAT:
                                                                                                                                                                                                                                                                                                1 MEPTIPLSRIFONAMERAHR .....NIELLRISTLLIQSWLEPVO
GenCore version 5.1.6
Cupyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           hits satistying operant paragraph or s
                                                                                                                                                                                                                                                                                                                                                                                                                       1107863 seqs, 158728573 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIE
                                                                                                  - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAP91041
AAP90129
AAW92264
AAP91299
AAR11740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAW92265
AAY42861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY42856
                                                                                                                                                                                                                                                                                                                                                                        Gapop 10.0 , Gapext 6.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A_Geneseq_19Jun03:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hength: 5
Length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum Match 08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         200220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cuery
Match Length DB
                                                                                                                                                                                                                                                    US-09-423-100-2
                                                                                                                                                                                                                                                                                                                                                    BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0
100.0
100.0
98.9
98.9
98.9
98.9
98.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --
                                                                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number
                                                                                                  OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database :
                                                                                                                                                                                                                                                                                                  Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                          Searched:
                                                                                                                                                   Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N m 4 W 6 M 60 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
```

	10	462	86	~	~3	11	AAR05313	of B-cel
	11	462	80 5	m (φ.	^	AAP61033	beta-nerve
	7 [460	. 6	יני ת	ro	بر ص	AAF81226 AAG20110	ed to
	14	460	97.	. 6	S	20	AAY15809	amino
	57.	460	. 16	or c	50	20	AAY04396	Natural human 22kD
	27	400		יט ת	T (7	2 :	AAX 04 34 / AAX 784 35	rowth h
	18	460	. 26	· o	191	22	AA017485	growth
	19	450	. 25	ъ.	J.	22	AA017486	uman growth
	20	000	2,5	ص ع	. (6.1 (19.1	23	ABG94859 ABG64860	Human growth hormo
	22	460	. 76	• •	191	23	ABG94861	growth
	23	460	. 25	σ	14.1	53	ABC94862	growth
	24	460	5.5	on c	[6]	~ ~	ABG94863	growth
	5.5 2.6	4.60	2, 2			7 %	ABC94854 ABC94907	Ruman growth hormo
	7.7	460	6.7	س ،	. 6	3.5	ABG94908	growth
	28	097	ć: i	<u>.</u>	3	5	ABG94909	growth
	67		9	or a	 5- :	~ :	ABG94910	growth
	Ç.) 2 4 7 5	, ,	7 1 J	 	, c	ABC0441.	Human growen normo
	52	0.94		٠,٠		~~	ABG94913	growth
	33	460	. 75	J.	191	5 3	ABG94914	growth
	34	460	. 65	6.	167	ž (ABG94915	growth
	5 . 5 .	4 to 0		s o	20.0	, ,	ABC94916	Human growth hormo
	37	4.60	. 6	n or		7 C	ABC 94 91 / ABC 94 91 F	growth
	- 20	600	. 6	۸۲. ۱۰	151	ı Ã	ABG94919	qrowth
	3.5	466	97.	٠:>	1 - 1	53	ABG94920	growth
	40	460	92	s)	161	~ *	ABC94921	growth.
		450	5.5	J (191	£ 6	ABG94922	growth
	7 4 7	4 5 U			 	7 ~	ABG94923 ABG94924	Human growth hormo
	44	4.50	. 6	n 01	131	23	ABG94925	qrowth
	Δ .	460	. 7.6	· 5·	191	.7	ABG94926	growth
							ALIGNMENTS	
RES	1 110							
I D	4,856 AAY42856		nda	standard; protein;	rotei	(u	92 AA.	
××								
S¥ ××	AAY4285	263						
ro Lo		-3AN-2000	-	(first	entry	~		
xx					•			
DE X	ımatı	growth		hormone	(hGH)	Z (F	terminal tragment #2.	
< 3 < ×	i trombi	Growth hormone.	3		9000		nt rame lecular.	erecursor:
3.	foldin	olding: conf	ţo	mati	on; chir	Ē	ric protein	recombinant;
3 ×	produc	roduct. Lon;	, ,	reld.				
SO	CMC	sapiens						
× A	MO9950302	302 A3						
×								
GZ X	07 - OCT	-1999						
4 d	31-MAR	1998;		0 M 86	CN00052)52.		
XX PR 31	31 - MAR	-1998;		98WO-CN00052	CN000)52.		
×	0,40	_	Ĩ.		115.63	7.016	OF SOCIONDOSESIG HOGENEO MINONOFE	
×××	DNO!			245		11.15	ECHNOLOGI LID.	
PI	Gan 2;							
XX C	WP1: 1	999-6108	0.83	39752.				
××	•							
PT C	3	chimeric	Į,	proteins	s cor	tai	containing human growth hormone	e fragment, used
<u>z</u>	=	ularıy	<u>.</u>	i the	prod	anct	ton of human insulin	

~

```
chimeric profess as an intramolecular chaperone (IMC) for the linsuin precursor, enabling it to fold correctly. A cleavable peptide linsuin precursor enabling it to fold correctly. A cleavable peptide of the chimeric protein to be removed after folding has taken place. Production of recombinant human insulin via an hGH-proinsulin chimeric protein can provide human insulin with correctly linked cystein cridges with fewer necessary procedural steps, and hence resulting in a higher sequences from intracellular degradation by a microorganism host, but also promote the folding of the fused lossing procedural in the first of the first of processory (section of the first of the first of precipitation of the first of the first of precipitation is the first of precipitation in the first of the fir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    interactions among the tuston proteins, thus a leaving fidding of the fused boson is promised as recentrally used that can entrations, the procedural stage of commandations are astably as sufficient ones. The and related purification steps can thus be officiented by along with the use of high concentrations of mercaptan or the use of hydrophobic
                                                                                                                                                                       sequence represents an N-terminal 1 agment of human growth hormone
                                                                                                                                                                                                                             (AGH) which is a component of a chimeric protein (AAY42861) which also contains a human insulin precursor (AAY4289). The HGH portion of the
                                               Claim 5; Page 28; 46pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   absorbent resins.
```

42 AA: Sequence

```
0; Caps
           100.0%; Score 47.0; DB 20; Length 92; 100.0%; Pred, No. ((Re-40))
                                   Indels
                                    .
O
                                 Mismatchis
                                   ċ
Ouery Match
Bost Lucai Similarity 100.0
```

PETTELSKILFDNAMLKABRIHGLAFDTYGEFERAYTPKRÇKYSFLÖNPQTSLSFSBSTP (6) 1 MEPTIPLSRLFDNAMLRAHRUNGLAFUTYQLE BFAYIPKEQKYSFLQNPQTSLSFSRSTP 61 TPSNREETQQKSNLELLRISLLLTQSWLEPVQ 92 ें ò

RESULT 2 AAW92265

AAW9226% Standard; Protein: 134 AA

AAW92265:

08-JUN-1999 (first entry)

Human acti angiogenic peptide 16K how met-19rolls.

Human: anti-angiogenic; prolactin; planestal lactogen; FE; angloachesis; quowith hormone; hGH; hGH; V; capillary endottelial cell proliforation; planestal vascularisation; prequancy; treatment; anglogenic disease; tumcur; inhibitor; malignant; anglofibrom; arteriovecous maliormation; arthritis; atherosclerotic plaques; corneal graft neovascularisation; wound healing; proliferative relingably; macular degeneration; trackomal granilation; qlaucoma; ocilar, uvelis; fracture; OsleryGeber syndrome; pseriasis; tibroplasia; scleroderma; Raposi's sarcoma; vascular addustion; quier; ionicangly pre-eclampsia; intradiorine growth retardation; placestal dystunction.

Home sapiens

W09851323 A1

8561 - AUN - 61

58WO-US09691 12-MAY-1998; 97US-0046394. 13-MAY 1997;

(REGC) PNIV CALIFORNIA.

```
This invention describes nove; human anti-angiogenic peptides derived from 10 to 150 consecutive amino acids selected from the N-terminal end of from 10 to 150 consecutive amino acids selected from the N-terminal end of human placeman lateragen (http://p. numan growth hormone (http://p. growth confoce variant (hdH-V), or human productin, such peptides (i) inhibit capillary endothelial cell proliferation and organisation (ii) inhibit capillary endothelial cell proliferation and organisation (ii) inhibit capillary endothelial cell proliferation and organisation (ii) inhibit capillary endothelial cell proliferation and organisation (iii) inhibit capillary endothelial cell proliferation and organisation did not not capillary endothelial cell proliferation and organisation of for capillary endothelial or growth in a patient or for a subject, for inhibiting tumour formation or growth in a patient or for caddibiting vacularisation of a patient's placenta. The particular, the peptides can be used for prevention or relating or treating or treating control or control or capillary endothers, control or arthritic such as rheumatoid cally proliferation, arthritic such as rheumatoid cally proliferation, quantitions such as those occurring or through joints inappropriate vascularisation in wound healing or tractored propriate vascular quancoms, occident and reproductive disorders such as follical tumours, common, retrolemal fibroplasia, screedered, sould tumours, common, reprolemal reproductive disorders such as follical and luteal cysts can conformational reproductive disorders such as follical and luteal cysts can conformational levels of N-terminal fragments of bids described and choriocartional vascular disorders such as follically and development of abnormal levels of N-terminal fragments of bids described and choriocartional and propertions and reproductive disorders such as follically and development of abnormal levels of N-terminal fragments of bids described and choriocartions and reproductive heads of transplants of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         with pre-ediampsia, intrauterine growth retardation, and placental
                                                                                                                                                   New anti-anglogenic peptides - comprise N terminal fragments of
                                                                                                                                                                            human placental lactogen, human growth hormone, growth hormone
   Weiner Ri;
                                                                                                                                                                                                                                                                   Claim 4: Page 49-50; 87pp; English.
   raylor R,
                                                                                                                                                                                                            variant or human prolactin
   Struman 1,
                                                      WPI; 1999 045192/04.
                                                                                      N-PSDB; AAX01707
```

DB 20; Length 134; 8.8e-40; 100.0%; Score 470; 100.0%; Pred. No. 8 Local Similarity 144 AA; Sedmonse Query Match

.. O

Indels

0

Mismatches

.;

Conservative

92;

a 3

61 TPSNREETQCKSNLEELR) ILLIQSWLEPVQ 92

61 IPSNREETOGKSNLELLRISLLLIQSWLEPVO 92

AAY42841 standard: proteis: 150 AA AAY42861 RESOUT

19-JAN-2000 (first entry) AAY42F61;

Chimeric protein, SEC ID 7.

Insulin: precursor; growth h rmone; chaperone; intramolecular; folding; conformation; chimeric protein; cleavable; recombinant; production; yield

Synthetic

Homo sapiens

Gan Z:

```
Human growth hormone seqment, used at the N-terminal of a fusion protein, which contains a thrombin recognition site, and himan beta nerve growth factor (beta-NGF) at the Citeminal. Beta-NGF can be used to control geriatric dementia and other nervous disorders, and can be released from the fusion protein by incubation with thrombin (see AAN90577-8, AAP91034, AAP91299).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MEPTIPLSRLFUNAMLRAHKLHULAFDTYQEFEEAYIPKEOKYSFLUNPOTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New human nerve growth factor gene encoding fusion protein - having cleavage site for thrombin, useful for treating geriatric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Recombinant vector contg. fusion protein - consisting of human growth hormone or deriv. ligated to foreign protein, for stability and high yield.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98.9%; Score 465; DB 10; Length 140; 98.9%; Pred. No. 3e-39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human growth hormone; fusion protein; recombinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 IPSNREETQOKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          THILLIHILIHIHIHIHIHIHIHIHIHITT TPSNREETQQKSNLELLRISLLLIQSWLEFVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; page 21: 38pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAP90129 standard: protein: 192
                                                                                                                                        88JP-0035042.
                                                                            89EP-0102795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8738 0304937.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   87.1: 0304937.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (WAKT ) WAKUNAGA SEIYAKU KK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cuery Match
Hest Local Similarity 98.35
Hest Tocal Similarity 98.35
The Similarity 98.35
The Similarity 98.35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (updated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (revised)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                WPI; 1989-243092/34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1989-209284/29
                                                                                                                                                                                                    (TOYJ ) TOSOH CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-PSDB: AAN90269
                                                                         17-FEB-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02-DEC: 1987;
                                                                                                                                     19-FEB-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JP01144981-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02 · DEC - 1987;
                23-AUG-1989.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       07-JUN-1989.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25-MAK-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        06-FEB-1996
01-NOV-1989
                                                                                                                                                                                                                                                                    Ohtsuka E;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAP90129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAP90129
             ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PHYSE PRESENTATION OF THE PROPERTY OF THE PROP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Niteriniai tradment of human grawt, harmone (http:) of the sequence given in AAY42856, a cleavable peptide linker (AAY42857), and a human insuiin of the chimeric protein acts as an intramolecular chaperone (LMC) for the chimeric protein acts as an intramolecular chaperone (LMC) for the insulin precursor, enabling it to foid correctly. The cleavable of the insulin precursor enabling it to foid correctly. The cleavable of the chimeric protein to be removed after folding has taken place. Production of recombinant human insulin as high profits and provide human insulin with the chimeric protein controlling with the chimeric protein can provide human insulin with the chimeric protein controlling in a higher yield of human insulin. The last sequences not only protect insulin sequences from intracellular degradation by a microorganism host, but also proceed insulin precursor, inclinate the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          interactions among the fusion proteins, thus allowing folding of the fused instill n precursor at commercially useful high concentrations. The procedural steps of cyanogen bromide cleavage, oxidative suphtholysis and related putilication steps can thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic absorbest.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MEPTIPLSRIFONAMLRAHRIHQIAFOTYQEFERAYIPKEQKYSFIQNPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                           New Chineric proteins containing human growth hormone fragment, used particularly for the production of human issuin .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   solubility of the fusion profein and decrease the intermolecular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This sequence represents a chameric protein, which contains an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%: Score 470; 18 20; Length 150; 100.0%; Pred. No. 1e-39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human growth hormone; fusion protein; thrombin; geriatric dementia; nervous disorders; human nerve factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 TPSNREETQQKSNLFLLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6) TPSNREETQQKSNLELLRRISHLHTIOSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                      (TENG+) TONGHUA GANTECH BIOTECHNOLOGY LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 14: Ease 30 vls 46pp: Baalish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAF91041 Standard: protein: 140 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Buman growth hormone segment.
                                                                                                                              98WO-CN00052
                                                                                                                                                                                          98WO-CN00052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Mutch
Best Local Similarity
Tomos 92: Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (humar)
                                                                                                                                                                                                                                                                                                                                                                               WPI: 1999-610839/52.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             150 AA:
W09950302-A1
                                                                                                                                                                                          11-MAR 1998:
                                                                                                                           31 MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14 - UEC - 1989
                                                            07-00T-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EP329175-A
```

Sequences

AAP9:041;

RESULT 4 AAP91041

g ô

0

Gaps

.. O

09

Matches

d

ć

AAW92264 RESULT

```
186.36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           89EP-3102795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         88JP-0035042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          141..143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 98.9
Matches 91: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens (human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          192 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-FEB-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-DEC 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-FEB-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-AUG-1989.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EP329175-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Region
Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 7
AAP91299
q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human: anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis; quewth hormone; hGH; hGH-V; capillary e dothelial cell proliferation; placental vascuiarisation; pregnancy; i tument; angiogenic disease; tumout; inhibitor; malignant; angiodibi mu; arreriovenous malformation; arthritis; atherosclerotic plaques; cornwal graft neovascularisation; wound healing; proliferative retinopathy; macular degeneration; trachona; granulation; qlaucoma; ocular, uveitis; fracture; oslar-weber syndrome; psoriasis; tibroplasia; seleroderma; Rarosi's sarcoma; vascular adhesion; gene therapy; pre-eclampsia; intrauter; o ground; retardation; plucental dystunction.
                                                                                                                                                                                                                                                                                  1. MEPTTPUSKI FONAMI RABRIJIQLAPOTN QERFEAYTPREGRYSET UNDUSUSPESSEE
                                                                                                                                                                                                                                                                                                         Gaps
                                        The invention consists of a vector contq. a fusion protein which is formed by inquting, downstream of a promoter, hGH or a deriv. (pref. formed by subtstn. of Met.-14 with Leu) and a foreign protein. Stability of the vector in the host is greatly increased so the protein yield is higher. (Updated on 25-MAR-2003 to correct PA field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New antirangiogenic peptides - comprise N·terminal fragments of
human placental lactogen, human growth hormone, growth hormone
variant or human prolactin
                                                                                                                                                                                                                                                 ن
                                                                                                                                                                                                             DB 10; Length 192;
                                                                                                                                                                                                                                               1nde,s
                                                                                                                                                                                                                                               ::
                                                                                                                                                                                                           Score 465; DB 10;
Pred. No. 4.2e·39;
0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human anti-anglogenic peptide nGH Met-1Phe191.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Weir of RI;
                                                                                                                                                                                                                                                                                                                                                     61 TPSNREETQUKSNLELLRISLELIQSWLETA (92)
                                                                                                                                                                                                                                                                                                                                                                            HILLSHIP SHIPSHIPS THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Taylor R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW$2264 standard; Protein; 192 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 3; Page 49; 87pp; English.
       Disclosure: Fig 1: 19pp: Japanese.
                                                                                                                                                                                                           98.98;
98.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98W0-0309691.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9705-0046394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         08 JUN-1999 (first entry)
                                                                                                                                                                                                                                              91; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Martial JA, Struman I,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (REGC ) UNIV CALIFORNIA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WP1: 1999-045192/04.
                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                        192 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N PSDB: AAX01706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12 MAY 1498;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W03851324 A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13 MAY - 1967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8661 ANN-6
                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAM92264:
                                                                                                                                                                                                           Query Match
```

```
peptides can be used for proventing the properties of malignant tumours, angiotobroma, arteriovenous malformation, arthritic such as rheumatoid arthritis, atheroscientics plaques, corneal graft neovascularisation, delayed wound healing, proliferative retimopathy such as thematoid cally proliferative retimopathy such as those occurring in haemophilic joints, inapprepriate vascularisation in wound healing such as hyportrophic scars or keloid scars, recovascular diancoma, ocular tumour, uvertis, non-union tractures, usiet where syndrome, psoriasis, pyoquent alourema, tractured libroplasia, schroderra, soil tumours, wascular disorders such as tollicular and luteal cysts and conformation in peptides can be used in quent therapy. The measurement of abnormal levels of N-terminal tragments of hGH, hGH-V, prolactin or hPL can be used in assays for impairment of vascular development associated with pre-elampsia, intrauterine growth retardation, and placental
hormone variant (hGH·V), or human prolactin. Such peptides (i) inhibit, capillary endothelial cell proliferation and organisation (ii) inhibit, anglogenesis in chick chorioallantoic membrane and (iii) binds to at least one specific receptor which does not bind an intact full length hGH, hPL, prolactin or hGH·V. The invention also describes a method for diagnosing a probable abnormality of placental vascularisation during preparacy. The poptides can be used for treating an anglogenic disease in a subject, for inhibiting tumour formation or growth in a patient or for modulating vascularisation of a patient's placenta. In particular, the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MFPTIPLSRLFONAMLRAHRLHOLAFOTYQEFEEAYIPKEQKYSFLONPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human nerve growth factor and human growth hormone fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98.9%; Score 465; DB 20; Length 192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human nerve growth factor; fusion profects; thrombin;
geriatric dementia; nervous disorders; human growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 4.2e-35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 TPSNREETOOKSNLELLRISHLINGSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local ion/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAP91299 standard; protein; z61 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TOYJ) TOSOH
```

Ohtsuka E;

This invention describes novel human anti-anglogenic peptides derived from 10 to 150 consecutive amino acids selected from the N-terminal end of human placental lactogen (hPL), human growth hormone (hGH), growth

S

```
262 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             310 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB; AAQ02028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-JUL-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JUL-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Home sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JP02013375-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-JUL-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-JAN-1990
           Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 10
                                                                                                                                                                                                                                                                                                                                                            AAR0 3255
           S
                                                                                                                                          õ
                                                                                                                                                                                 5
                                                                                                                                                                                                                            ó
                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                        Fision protein consisting of human growth hormone at the Niterminal end (1st region), a 3 amino ucid sequence representing thrombin recognition site, and human beta nerve growth factor (beta-NGF) at the Citerminal. Beta-NGF one use used to control geriatric dementia and other nervous disorders, and can be released from the fusion protein by incubation with thrombin (see AAN96577-8, AAP91634,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MEPTIPLSRLFDNAMLRAHRLHQLAFDTYÇEFEFAYIPKEQKYSFLÜNPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A recombinant human nerve growth factor beta subunit-contg, protein can be produced as this fusion protein. It is purified by contacting a gel having a cation exchange gp. with the fusion protein, in the presence of urea. The purified protein is useful in a medicament for treating disorders of the nervous system, eg dementia. (Updated on 25-MAR-2003 to correct PF field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rificn. of human neuron growth factor beta-subunit-contg. protein contacting with gel having cation exchange gp. in presence of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ruman growth hormone/human nerve growth factor beta insion protein.
                                                             New human nerve growth factor gene encoding fusion protein
- having cleavage site for thrombin, useful for treating geriatric
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                  De los benath z61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; indels
                                                                                                                                                                                                                                                                                                                                                                                                                                     ; f.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hGH; hNGF; nervous system diseases; dementia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 TPSNREETQQKSNLELLRISLLCIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ù
                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismate
                                                                                                                                                                                                                                                                                                                                                                                                                  Secre 455.
Pred. No. 3
                                                                                                                                                 Claim 36; page 31-32; 38pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR11740 standard: Protein: 262 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          disclosure : fig 1: 7pp: Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                48,485
98,485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    89JF-0202835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89JP-0202835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                         Vec.,
West Loca: Similarity
Watches 91; Conservative
                    WPI: 1989-243092/34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI: 1991-128768/18.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (FOYJ ) TOSOH CORP.
                                                                                                                                                                                                                                                                                                                                                                       26.1 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N PSDB; AAU11578
                                                                                                          dementia, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JP03067548 A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Purifica, of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25 MAR 2003
25-JUN-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  07 AUG-1584;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27 - AUG 1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22-MAR 1991
                                                                                                                                                                                                                                                                                                                            AAP91041)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR11740;
                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ur e.a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR11740
ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X D D X D D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

```
0
                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                       09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The protein is produced by fusing CNA encoding BDF (11.-) with DNA encoding BSF-2 (11.-5) and 1:qating the product into an expression vector See also AAR05311 and AAR05313.
                                                                                                                                                                                                                  1 MEPTIPLSRLFONAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLONPQTSLSFSESIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HILLI | HILI | HILLI | HILLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MEPTIPLSRIFDNAMLRAHRUHQLAFDTYÜEFEBAYIPKEOKYSFLÜNPÜTSLSFSESIP
                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               interleukin-6, B cell differentiation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Propol of human B-cell differentiation ractor - from specified DNA sequence segment, by recombinant DNA technique, gives protein of specified amino acid sequence.
                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .;
O
                     DB 12; Length 262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 465; DB 11; Length 310;
Pred. No. 7.3e-39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fusion protein of B-cell stimulatory factor-2 and B-ceil
                                                                                                              1; indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
               Score 465; DB 12
Pred. No. 6e-39;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 TPSNREETQOKSNLELLRISHLLIOSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 TPSNREETQOKSNLELLRISHLIJOSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 31; Page 9; 17pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR03255 standard; profern; sig-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAR05313 standard; protein; 144
               98.98;
98.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B-cell stimulatory factor-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              interleukin-5; tusion prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         88JP-0162556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88JP-0162556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
Query Match
Best Local Similarity 98.99
Matches 91; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match
Rest Local Similarity 98.99
Matches 91, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                differentiation factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI: 1990-062207/09.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (TOYJ ) TOSOH CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR05313
ID AAR(
```

AAR05313;

JP02013375-A

Homo sapiens

01 JUL-1988; 01 - JUL- 1988;

17 - JAN-1990

jo

ö

Gaps

ó

```
The polypeptide (AAPB1226) with somatomedin-like activity and the DNA (AANB1605) encoding it are claimed. A Met resicual gp. may be added to the Niterminal. The polypeptide acts on the bone structure of mammals, including humans, to promote bone growth. The polypeptide has high production rate and is easily extracted from bacterial culture medium and refined for use as a bone growth accelerator. (Updated on 25-MAR-2003 to correct PA field.)
                                                                                                                                                   The protein is a direct translation of the upstream tryptophan promoter operator lacking its attenuation sequence and human becance. The product may be efficiently expressed from a transformed E.coli expression system.
                                                                                                                                                                                                                                                                             98.38; Score 462; DB 2; Lought, 252;
97.88; Pred, No. 1.2er39;
199; I; Misratches I; Indels
                                                                           Gene segment of human nerve growth factor - used in prodn.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Polypeptide with sometomedin like activity by culturing bacterium transformed by plasmid conto, gene segment with specificd DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence of protein with somatomedin-like activity.
                                                                                            NGF-producing recombinant Escherichia strain.
                                                                                                                                                                                                                                                                                                                                                                                                     Claim 2(1); Page 509; 9pp; Jupanese.
                                                                                                                       Claim 32: Page 482; 71pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAP81226 standard; protein; 138 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (TOYJ ) TOYO SODA MEG CO LID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               86JP-0410177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86JP-0410177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                         Rest Local Similarity 47.89
Matches 90; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (updated)
                                              WPI; 1986-281696/43.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI: 1988-232632/33.
N-PSDB: AAN81605.
                                                                                                                                                                                                                                                   262 AA:
              (OTSU/) OTSUKA E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Growth hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JP63167798-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-DEC-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29-DEC 1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20-NOV-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-300-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic.
                                                                                                                                                                                                                                                   Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAP81226;
                                                                                                                                                                                                                                                                             CLOTY Mater.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAP81226
â
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ं
                                                                                                                                                                                                                                                                                                                                                                                                                                      â
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                The sequence encoding this protein can be fused with DNA encoding B-cell differentiation factor (IL-6) and ligated into an expression vector for prodn. of a fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MEPTIPLSRLFONAMLRAHRLHQLAFOTYCHER AYIPKEQKYSELONPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saps
                                                                                                                                                                                                                                                                                                                                                     Preph. of human B-cell differentiation factor - from specified DNA sequence sequence, by recombinant DNA technique, gives protein of specified amino acid sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 11; Length 144;
16 39;
s 1; Indels
                                                      Segment of B-cell stimulatory factor-2 (IL-5).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 TPSNREETQQKSNLELLHRISLLLIQSWLEPVL 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human betainerve growth factor gene prodit.
                                                                                     B-cell stimulatory factor-2: interleukin-5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 462;
Pred. No. f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
145..262
                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Page 9; 17pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ΑĄ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAP61633 standard; Protein: 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98.38;
97.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85JP-0045773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              85JP-0045773
                                                                                                                                                                                                               88JP-0162556
                                                                                                                                                                                                                                            88.19-0162556
                       19-JUL-1990 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25 OCT-1991 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity 97.8 PS 90: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BetaindE: E.coli; ds
                                                                                                                                                                                                                                                                                                       WPI: 1990-062207/09.
N-PSDB: AAQU2028.
                                                                                                                                                                                                                                                                          ARCO HOSCI ( DAOI)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           144 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               See also AAR05311
```

Sequence

Query Match

Matches

q Š JP51205485-A

Protein

Home sapiens

AAP6.10.3.3;

RESULT :1

09-MAR-1985; 09-MAR-1985;

11-SEP-1986

RESULT 13 AA020110

C C ö

```
The specification describes a method of detecting an exogenously administered substance from a naturally occurring endogenous substance, the exogenous substance being tagged so that it fluoresces differently from the endogenous one at a suitable wavelength. The tagging may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        consist of one or more substitutions in tagged growth hormone selected from G40Y. F22Y, W86F, Y, L, I or V F10Y or 1137Y; The method is used to distinguish between exogenously administered substances as compared to naturally occurring endogenous substances. Especially mentioned is the illegal misuse of growth substances by atthletes or in domesticated farm animals e.g. cattle. The present in the method of the invention.
                                                                                             Detection; fluoresce; illegal misuse; growth substance; athlete; domesticated farm animal; cattle; human growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22kDa growth hormone; hGH; mutant; thrombin; resistance;
                                                                  Primary amino acid sequence of native human growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 460; DB 20;
Pred. No. 1.3e-38;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62 PSNREETQOKSNLELLRISHLINGSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PSNREETQQKSHLELLRISLLIQSWLEPVO 91
                                                                                                                                                                                                                                                                                                                                                                                         Use of tagged exogenous polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Natural human 22kDa growth Lormone.
                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure, Fig 1; 38pp; English.
                                                                                                                                                                                                                                                                                              (GENE-) GENERIC BIOLOGICALS LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97.98;
98.98;
                                                                                                                                                                                                                                                                  97GB 002 4955.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY04396 standard; protein;
                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity 98.9
les 90; Conservative
                                                                                                                                                                                                                                                                                                                             Atkinson A. Marphy JP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      plasmin; decomposition.
                                                                                                                                                                                                                                                                                                                                                           WPI; 1999-338072/28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   191 AA:
                                                                                                                                                                                                                                   16-NOV-1998;
                                    28 - JUL - 1999
                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                14-N-W 1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JP11092499-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-JUN-1999
                                                                                                                                                                                                       27-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAY04396;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY04396
       3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                               :
:
                                                                                         Z FPTIPLSKLFUNAMLKAHRLHQLAFUTYGEFEEAYIPKEOKYSFLGNPQTSLSFSSSIPT 61
                                                                                                         2 FPTIPESRLFONAMLRAHKLHQLAFOTYQEFEEAYIPKEQKYSFJONPOISLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The invention relates to a serum albumin-growth hormone fusion protein -
useful to treat growth hormone related diseases such as Down's syndrome.
This sequence represents a protein of the serum albumin-growth hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             useful to treat growth
                                                                                                                                                                                                                                                                                                                                                                                   Serum albumin-growth hormone fusion protein; growth hormone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 191;
                                 Length 138;
                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            i: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97.9%; Score 460; DB 18:
98.9%; Pred. No. 1.3e-38;
Live 0; Mismatches 1;
                               DB 9;
3e-39;
                                                                                                                                                                                                                                                                                                                                                   Protein sequence of the hGH growth hormone cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             usion protein -
Down's syndrome
                              Score 460; DB
Pred. No. 13e-
0; Mismatc: s
                                                                                                                                                    62 PSNREETOOKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                    PSNREETOOKSNLELLRISLLLIOSWLEPVO 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Serum albumin growth hormone fusion
                                                                                                                                                                                                                                                                ⋛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAY15809 standard; protein; 191 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure: Fig 1; 21pp: Korean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (DELZ ) DELIA BIOTECHNOLOGY LID.
                                                                                                                                                                                                                                                           AANZOTTO Standard: Frometer 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hormone related diseases, e.g.
                              97.98;
98.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98KR-0704914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95GB-0026733
96WO-GB03164
                                                                                                                                                                                                                                                                                                                        (first entry)
                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CONA of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WP1; 1997 363680/55
                                            Best Local Similarity
Matches 90; Conserv
138 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB; AAK99565
                                                                                                                                                                                                                                                                                                                                                                                                   Down's syndrome
                                                                                                                                                                                                                                                                                                                     06-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                              Unidentitied
                                                                                                                                                                                                                                                                                                                                                                                                                                                            KR99076789-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30-DEC-1995;
19-DEC-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25 JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-OCT 1999
 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                        AAG22110:
                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
```

0

Gaps

..

Indeis

Length 19;

9 61

> RESULT 14 AAY15809 ID AAY1

g ó

```
A human growth hormone mutant - with equivalent activity to natural human growth hormone
                                                                                   Example 1: Page 5-6; 10pp; Japanese.
                 97JP-0275277.
                             97JP-0275277.
                                         (SUMU ) SUMITOMO SEIYAKU KK
                                                     WPI; 1999-283567/24
                 22 · SEP - 1997;
                             22-SEP-1997;
     06-APR-1999
```

The prosect invention describes a human growth horoace garant in which the 134th Ara and the 135th Thr are replaced respections by Asp and Properties to the 195th Thr are replaced respections by the plant and the 195th and which has a resistance addings decemposition by thrombin. The present sequence represents the natural half. Also and the 140th Lys are replaced respectively by Asp. Pro and Ala in the amino acid sequence of natural type holf and which has a resistance against decomposition by thrombin and pleasn, and (2) a drug preparation containing the above holf mut at as the active component. The mutant, holf shows a nactivity approximately equivalent to that of natural type holf and blood and body fluid.

Sequence 191 AA;

Gaps Query Match 97.9%; Score 460; DB 20; Length 191; Best Local Similarity 98.9%; Pred. No. 1.3e-38; Matches 90; Conservative 0; Mismatches 1: Indels 0;

2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYOEFEEAYIPKEOKYSFLONPQISLSFSFSIPT 61

> a င်

င်

Search completed: September 15, 2003, 12:00:57 Job time : 65.6308 secs

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

OM protein . protein search, using sw model

September 15, 2003, 11:57:40; Search time 21.1039 Seconds (without alignments) 184.449 Million cell updates/sec Run on:

US-09-423-100-2 470 1 MFPTPLSRLFDNAMLRAHR......NJELLRISIALIQSWLEPVO 92

Title: Perfect score:

Sequence:

Gapop 10:0 - Gapext 0.5 RLOSUM62 Scoring table:

(28717 seqs, 4231.858 residues Searched

Total number of hits satisfying chosen parameters:

length: 0 length: 2000000000 Minimum DB seq Maximum DB seq Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

1: /cgn2_6/ptodata/l/iaa/5A 'OMB.pep:*
2: /cgn2_6/ptodata/l/iaa/5B COMB.pep:*
3: /cgn2_6/ptodata/l/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/l/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/l/iaa/pc/COMB.pep:*
6: /cgn2_6/ptodata/l/iaa/pc/COMB.pep:* Issued_Patents_AA:*

Pred. No. is the number of results producted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No	Score	% Query Match	(ength	ď	TD (I)	Description of
-	465	98.9	192	e+4	US-08-093-383-1	Sequence 1, Appli
7	460	97.9	191	4	US-09-284 878-5	5,
~	460	97.9	194	~	US-08-383-621-4	4
4	460	97.9	194	œ,	US-08-459-906-4	4
5	460	97.9	217	~	US-08-589-028-10	10,
Q	460	97.6	217	m	US 08-784 582 0	10,
7	460	97.9	217	~	US-08-785-271	10,
ဆ	460	97.6	217	~	US-08-759-628	11,
J.	460	97.9	217	4	US-09-284-878-1	٦,
10	460	97.9	241	4	US-09-424-620B:25	25,
11	460	97.9	245	4	US-08-280-030-66	,99
12	460	9.76	274	~	US-08-784 582-71	71,
13	460	97.9	360	٣.	US-08-784-582-73	73,
14	454	9.96		4		1,
7.5	424	9.96		_	US-08-187-756C-4	4
16	454	9.96	5 217	-	US-08-469-486-51	51,
17	454	9.96		7	US-08-469-658-51	Sequence 51, Appl
18	454	9.95	5 217	~	US-08-710-324A-4	4.
19	454	9.96		4	US-09-411-657-4	4
20	453	96.4	4 00	₹	US-09-420-819-37	37,
21	453	96.4	401	4	US-09-420-819	36,
22	447	95.1	191	٣	US-08-800-215t. 8	18,
23	445	94.7	191	٣	US-08-800-215C-16	16,
24	445	94.7	191	m	US-08-800-215C-20	20,
25	364.5	77.6		٣	US-08-791-728-1	1,
26	364.5	77.6	3 176	4	US-08-990-774-1	٦,
27	358.5	76.3	176	m	US-08-791-728-2	7

C 100 00 00 00 00 00 00 00 00 00 00 00 00	70.3	72.3 168 6	71.0 198 1 US-08-187-756C-5 Sequence	333.5 71.0 198 2 US-08-710-324A-5 sequence 5, Appli	71.0 198 4 US-09-411 657-5 Sequence	65.2 191 1 US-08-468-824-8 Sequence	64.8 191 1 US-07-963-331D-4 Sequence	64.4 216 2 US-09-105-651-1 Sequence	64.1 190 1 US-08-388-267C-2 Sequence	64.1 190 4 US-09-277-720-2 Sequence	64.1 191 6 521018C-1 Patent No. 52	64.1 193 1 US-07-621-197C-2 Sequence 2,	64.1 193 1 US-08-363-582-2 Sequence 2,	64.1 193 2 US-08-383-621-1	64.1 193 3 US-08-459-906-1 Sequence 1,	64.1 216 2 US-09-105-651-3 Sequence 3,	63,7 190 1 08-07-963-3310-3 Sequence 3,	63 7 391 1 18-67-900 503 1 Seguence 1.
0	0.00.0	340	333.5	333.5	333.5	306.5	304.5	302.5	301.5	301.5	301.5	301.5	301.5	301.5	301.5	£01.5	5.667	5.667

ALLIGNMENTS

```
APPLICANT: DeBoer, Herman A.
APPLICANT: Heyneker, Herbert I.
APPLICANT: Heyneker, Herbert I.
APPLICANT: Seeburg, Peter H.
TITLE OF INVENTION: DNA for Expression of Roving Growth Hormone CORRESPONDENCE ADDRESS:
ADDRESSEE: Generalech, Inc.
STREET: 460 Point San Bruno Blvd
CITY: South San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                     COMMINY: CALLIOLINA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
COMPUTER: 1MM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: pain (Generater)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/093,383
FILING DATE: 14-34L-1993
CLASSIFICATION NUMBER: US/08/093,383
FILING DATE: 28-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/19824
FILING DATE: 05-APK-1988
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 06/33361
FILING DATE: 19-3UL-1984
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 06/33361
FILING DATE: 19-3UL-1984
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 06/33367
FILING DATE: 18-SEP-1981
ATTORNEY AGENT: 18-SEP-1981
                                             Sequence 1, Application US/08093383 Patent No. 5489529 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Johnston, Sean A.
REGISTRATION NUMBER: P35,910
REFERENCE/DOCKET NUMBER: 46C4
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415/225-3562
TELEFAX: 415/952-9881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEX: 910/31-7168
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 192 amino acids TYPE: amino acid
RESULT 1
US-08-093-383-1
```

qq ò

```
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/383,621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E: American Cyanamid Company
One Cyanamid Plaza
                                                                                                                                                                                                                                       NAME: TSCVdos, Estelle J.
RECISTRATION NUMBER: 31,145
REFERENCE/DOCKET NOMBER: 31,278-01
TELECOMMUNICATION INFORMATION:
                                                                                                                                               CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/766,142
FILING DATE: 25-SEP-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                     US/08/383,621
06-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/08/459,906 FILING DATE: 02-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 4, Application US/08459906
Patent No. 6010999
                                                                                                                                                                                                                                                                                                                               TELEFAX: 203-321-2971
TELEX: 203-710-474-4059
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 194 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 02-JUN-1995
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 194 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Webster, Darryl L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity 98.9
Matches 90; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 : New Jersey
FRY: U.S.A.
07470-8426
                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Wayne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
STREET: On
                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-383-621-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-459-906-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ĉ
                                                                                                                                                                                                                                                                                                                                                                                                                                      Thylotrophic P. pastoris Yeast for the u of the Human Growth Hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MEPTIPLSRLFDNAMLRAHRLHQLAFDTYOFFEFAYIPKEQKYSFLQNPQTSLSFSFSIP 60
                                                                                                                                                 0: Gaps
                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Seddon, Andrew P.
TITLE OF INVENTION: Stabilization Of Somatofropins And Other
TITLE OF INVENTION: Proteins By Modification Of Cysteine Residues
                                                                                           ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 460; DB 4; Length 191;
Pred. No. 60-51;
0; Mismatches i: Indels
                                                       Score 465; DB 1; Length 192;
Pred. No. 1.4e-51;
                                                                                           1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Box 60
                                                                                                                                                                                                  61 TPSNREETQQKSNLELLRISLLIQSWLEPVQ 92
                                                                                                                                                                                                                     6: TPSNREETQOKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                   Square 5, Application US/04244878

Patent No. 642375

GENERAL INFORMATION:
APPLICANT: Olazaran, Martha Guerrero
APPLICANT: Saldana, Hugo Barrera
APPLICANT: Saldana, Hugo Barrera
TITLE OF INVENTION: Production and Secre:
FILE REFRENCE: 1829,0010000
CURRENT FILLINS DATE: 1999-07-21
PRIOR APPLICATION NUMBER: DCT/MX97/00033
PRIOR FILLINS DATE: 1997-10-24
NUMBER OF SEC. ID NOS: 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                52 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E: Dr. Estelle J. Tsevdos
1937 West Main Street, P.O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 4, Application US/08384621
Patent No. 5951972
GENERAL INFORMATION:
APPLICANT: Daley, Michael 3.
APPLICANT: Buckwalter, Brian L.
APPLICANT: Cady, Susan M.
APPLICANT: Chay, Susan M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97.98;
                                                   98.98;
98.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Patentin Ver. 2.1
                                  Ouery Match
Best Local Similarity 98.55
Best Local Similarity 98.55
For 91; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
Best Local Similarity 98.9%
Thus 95; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rohlen, Peter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Connecticut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
TOPULOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: Stamford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: U.S.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 191
                                                                                                                                                                                                                                                                                          RESULT 2
US-09-284-878-5
     1-88-0-80-Sn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-284 878-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-383-621-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ 1D NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWAFE
```

q ò

```
4 FPTIPLSKLEDNAMLRAHKLIQLAFUTYQEFERAYIPKRQKYSFLQNFQTSLCFSESIPT 63
                                                                                                                             2 FPTIPLSRLFUNAMLKAHRLHQLAFUTYQEFERAYIPKEQKYSFLQNVQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Daloy, Michael J.
APPLICANT: Buckwalter, Brian L.
APPLICANT: Gady, Michael J.
APPLICANT: Shieh, Hond-Ming
APPLICANT: Shieh, Peter
APPLICANT: Scadon, Andrew P.
TITLE OF INVENTION: Stabilization of SomatoLropius and Other
TITLE OF INVENTION: Proteins by Modification of Cysteine Residues
CORRESPONDENCES. 1
97.9%; Score 460; DB 2; Length 194; 98.9%; Pred. No. 6.1e-51; Live 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
```

Tue Sep 16 08:22:51 2003

38.98;

```
D
                                                                                                                                         ô
                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ô
                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                 2. FPTTPLSRUEDNAMGRAHRIEGTAFFFFYAYTPREGKYSFLUNPGTSUSESSEDT 61.
                                                                                                                                                                                                                                                                                                sdety
                                                                                                                                                                                                                                                                                          3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: Recombinant Expression of Proteins From TITLE OF INVENTION: Secretory Cell Lin.s NUMBER OF SEQUENCES: 50
                                                                                                                                                                                                                                                     Score 460; DR 3: Length 194;
Pred. No. 6.1e-51;
0: M.Smatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OPERATING SYSTEM: PC-DOS/MS-DOS
SCETWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                         62 PSNREETQQKSNLELLRISLLLIQSWLEPVU 92
                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Highlander, Sleven I.
REGISTATION NUMBER: 47,642
REFERENE, DOCKET NUMBER: UISD: 426-HY
TELEY AMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Newgard, Christopher B.
APPLICANT: Halban, Philippe
APPLICANT: No. 6087129mington, Karl D.
APPLICANT: Clark, Samuel A.
APPLICANT: Thippen, Anice E.
APPLICANT: Kruse, Fred
                    31,278-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/08/589.028
FILING DATE: CONCULTENTLY HEREWILL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: Arnold, White & Durkee
STREET: P. C. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 10, Application US/08589028 Patent No. 6087129 GENERAL INFORMATION:
REGISTRATION NUMBER: 34,276
REFERENCE/POOCKET UNBER: 31,
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-831-3247
                                                                       TELEFAX: 201-831-3305
INFCRMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 194 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 98.9%;
Matches 90; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (512) 474-7577
INFORMATION FOR SEQ ID NO: 10:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (512) 418-3000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : 217 amino acids amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                          ; MOLECULE TYPE: protein US-08-459-906-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  77210-4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: CO-CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 5
US-08-589 028-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-589-028-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                              q
```

Length 217;

DB 3;

97.9%; Score 460;

Query Match

```
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                   2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYGEFEEAYIPKEGKYSFLCNPQTSLSFSESIPT 61
                                                                                            2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLUNPQTSLSFSFSIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27 FPTIPLSRLFDNAMLRAHRLHQIAFDTYGEFERAYIPKEGKYSFLQNPQTSLCFSFSIPT 86
                          0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RECOMBINANT EXPRESSION OF PROTEINS FROM SECRETORY CELL LINES 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97.9%; Score 460; DB 3; Length 217; 98.9%; Pred. No. 7.1e-51; ive 0; Mismatches 1; Indels
      Pred. No. 7.1e-51;
0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OPERATING SYSTEM: PC-DOS/MS: DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                        62 PSNREETQOKSNLELLRISLLLIQSWLEPVO 92
                                                                                                                                                                                                                                                                                                                                                                                                             \stackrel{\cdot}{\simeq}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08/784,582 FILING DAIE: Concurrently Herewith
                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Halban, Prilippe A.
APPLICANT: No. 61192070indton, Karl
APPLICANT: Clark, Samue: A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA.
APPLICATION NUMBER: US 60/028,427
FILING DATE: 15-0CT-1996
PRIOR APPLICATION DATA.
APPLICATION NUMBER: US 08/589,028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Arnold, White & Durkee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 08/589,028 FILING DATE: 19-JAN-1996 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Highlander, Steven L.
REGISTRATION NUMBER: 37 642
REFERENCE/DOCKET NUMBER: UTSD:514
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Newgard, Christopher B.
                                                                                                                                                                                                                                                                             US-08-784-582-10
: Sequence 10, Application US/08784582
: Patent No. 6116707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC Compatible OPERATING SYSTEM: PC-DOS/MS
                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANI: Thigpen, Anice E.
APPLICANI: Quadde, Christian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: McGarry, Dennis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: 512/418-3000
TELEFAX: 512/474-7577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    217 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity 98.9%
Matches 90; Conservative
Best Local Similarity 98.9 Matches 90, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 512/474-7577
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: P.O. Hox 4433
CITY: Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Kruse, Fred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: Arnold, W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: CONCUR. CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Texas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TOPOLOGY:
US-08-784-582-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
```

us-09-423-100-2.rai

```
2 FPTIPLSRLFDNAM:RAHRLHQLAFDTYQEFBEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .
0
                          APPLICANT: Bazan, J. Fernando
APPLICANT: Kastelein. Robert A.
TITLE OF INVENTION: MUTATIONAL VARIANTS OF MAMMLIAN PROTEINS
NUMBER OF SEQUENCES: 11
CORRESPONDENCE ADDRESS:
ADDRESSEE: DNAX Research Institute
STREET: 961 California Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97.9%; Score 460; DB 3; Length 217; 98.9%; Pred, No. 7.1e-51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: 192.210
COTHER INFORMATION: Znote: "The peptides above are COTHER INFORMATION: depicted in Figure 1"
US-08-759-628-11
                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-VOS/MS-DOS
SOFTMARE: PatentIn Helease #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C; Mismatches
                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/08/759,628
FILLING DATE: 05-040 1996
OLASSIFICATION: 445
                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA: APPLICATION NUMBER: US 60/008.574 FILING DATE: 06-DEC 1995 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Ching, Edwin P. RECISTRATION NUMBER: 34,0 d. RECISTRATION NUMBER: 1x05520 TELECOMMUNICATION INFORMATION: TELEPHONE: 415-852-9196 TELEFAX: 415-496-1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Olazaran, Martha Guerrero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1, Application US/09284878 Patent No. 6342375 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 415.496-1200
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGIH: 217 amino acids
            Rock, Fernando L
                                                                                                                                                                                                                      ZIP: 94304-1104
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity 96...
For 90, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Peptide
133..153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Peptide
32..53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Peptide
94..115
                                                                                                                                            STREET: 901 CaliforITY: Palo Alto STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 amino acid
                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION:
          APPLICANT:
                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 9
US-09-284-878-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTTPLSRLFDNAMLRAHRLHOLAFDTVOEFFRAYIPKEOKYSFLQNPOTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                     GENERAL INCRMATION:
APPLICANT: Newgard, Christopher B.
APPLICANT: Halban, Philippe A.
APPLICANT: Halban, Philippe A.
APPLICANT: O. 6194176minqton, Karl D.
APPLICANT: Clark, Samuel A.
APPLICANT: Clark, Samuel A.
APPLICANT: Ousade, Christian
APPLICANT: Kruse, Fred
APPLICANT: RECOMPLIANT EXPRESSION OF PROFFINS FROM
TITLE OF INVENTION: RECOMPLIANT
TITLE OF SECHETCHY CELLILIES
NUMBER OF SECHETCHY CELLILIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97.9%; Score 460; DB 3; Length 217; 98.9%; Pred. No. 7 16-51; Live 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PATENTIN FILLS/MS-DS-S
CURRENT APPLICATION DATA: PAPELICATION NUMBER: US/08/785,271
FILLING DATE: OSCURTENTLY HEREWITH
CLASSIFICATION: 435
62 PSNREETQQKSNLELLRISLLLIQSWLEPVC 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/589,028
FILLING DATE: 19-JAN-1996
ATTORNEY/AGENT INFORMATION:
NAME: Highlander, Steven L.
REGISTRATION NUMBER: 37,642
REFERNE/COOKET NUMBER: UTSD:513
TELECOMMUNICATION INFORMATION:
TELEPHONE: 512/418-3000
                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Arabid, White & Janker
STREET: P.O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PC - DOS / MS - DAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 11, Application US/08759628
Patent No. 6225446
GENERAL INFORMATION:
                                                                                                                                    Sequence 10, Application US/08785271 Patent No. 6194176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: Floppy disk COMPUTER: IBM PC COMPALIBLE OPERATING SYSTEM: PC-DOS/MS-180FTMARE: Patent?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: 512/474-7577
INFORMATION FOR SEQ ID NO: 10:
SEGUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Altmann, Scott W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : 217 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 98.9°
Matches 90: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Texas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-785-271-10
                                                                                                                   US-08-785-271-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-759-628-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 8
                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

.. O

```
GENERAL INFORMATION:
APPLICANT: Sato, Seiji
APPLICANT: Hoparathen:
APPLICANT: Hoparathen:
APPLICANT: Hoparathen:
APPLICANT: Kato, Geshivuki
APPLICANT: Kato, Geshivuki
AFFLICANT: Kato, Geshivuki
TITLE OF INVENTION: DNAS
TITLE OF INVENTION: DNAS
TITLE OF INVENTION: DNAS
TITLE OF INVENTION: DNAS
TITLE OF INVENTION: HABER: US/09/280,030A
CURRENT APPLICATION HABER: US/09/280,030A
CURRENT FILING DATE: 1999-03-26
EARLIER APPLICATION: HABER: UPIG-87339/1998
EARLIER FILING DATE: 1998-03-31
NUMBER: OF SEQ ID MSS: 66
SECTIONERS: FALCING DATE: 1998-03-31
                                2 FPTIPL.SRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFL.ONPGTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: Description of Artificial Sequence: Designated is OTHER INFORMATION: an amino acid sequence of MMPsp-MWPmp20 TEV-G-GH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: McGarry, Dennis
TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
TITLE OF INVENTION: SECRETORY CELL LINES
CORRESPONDENCE: 79
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97.9%; Score 460; DB 4; Length 245;
98.9%; Pred. No. 8.4e<sup>.</sup>51;
tive 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       111 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 141
                                                                                                                   62 PSNREETOQKSNLELLRISLLLIGSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Newgard, Christopher B. APPLICANT: Halban, Philippe A. APPLICANT: No. 610070mington, Karl D. APPLICANT: Clark, Samuel A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arnold, White & Durkee
                                                                                                                                                                                                                                        US-09-280-030-66
; Sequence 66, Application US/09280030A
; Patent No. 6506595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 71, Application US/08784582
Patent No. 6:10707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Clark, Samuel A. APPLICANT: Thigpen, Anice E. APPLICANT: Quade, christian APPLICANT: Kruse, Fred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90; Comservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P.O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 77210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-784-582-71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CS-09-280-030-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESOLT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                       g
                                                                                                                     င်
                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           占
SEONG, Baik-Lin
TITLE OF INVENTION: Process for prejaring recombinant, pr. eins using highly
efficient expression vector from Sach romyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 FPTIPLSRLFDNAMLRAHRLHQLAFUTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                 Ouery Match 97.9%; Score for 1464; Tearth 217; Best Local Similarity 98.9%; Pred. No. 1.16-51; Matches 90; Conservative 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 460; DB 4; Length 241;
Pred. No. 8.2e-51;
0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: U.S.A.
ZIP: 06510-2802
CHMOUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.5 inch, 1.44 Mb storage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: BACHMAN & LAPOINTE, P.C.
STREET: Suite 1201, 900 Chapel Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: HANIL SYNTHETIC FIBER CO., LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62 PSNRRETOOKSNLELLRISLLLIQSWLEPV, 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA:
APPLICATION DOMBER: US/09/424,620B
FILING DATE: 24:ND: 6391585 1999
INFORMATION FOR SEQ ID NG: 25:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM
OPERATING SYSTEM: WINDOWS 95/98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE: PROTEIN
SEQUENCE DESCRIPTION: SEQ ID NO: 25:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 25, Application US/09424620B Patent No. 6391585 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 241 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOON, Jae-Woong
HAE, Cheon-Soon
YANG, Doo-Suk
LEE, Jee-Won
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JANG. Ki-Ryong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97.9%;
98.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE: Connecticut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: MS WORD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity 98.99
Matches 90; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: New Haven
                                                                                                                                                                                                                                                                                                                      ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-424 620B-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-424-620B-25
                                                                                                                                                                                                                                                                                                                                          US-09-284 878-1
                                                                                                                                                                                                                                                                                                   TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPOTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Ver. on
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/784,582
FILING DATE: CONCURTENTLY HEREWITH
CLASSIFICATION: 435 PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/028,427
FILING DATE: 15-0CT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/589,028
FILING DATE: 19-1AN-1996
ATTOKNEY AGENT INFORMATION:

on #1.30

NAME: Highlander, Stever I.
REGISTATION NUMBER: 37.642
REFERENCACKET NUMBER: 17.51 9.14
TELEPHONE: 512/418-3000
TELEPHONE: 512/418-3000

TELEFAX: 512/474-7577
INFORMATION FOR SEQ ID NO: 71:
SEQUENCE CHARACTERISTICS:

274 amino acids amino acid STRANDEDNESS:

TOPOLOGY: linear US-08-784-582 71

97.9%; Score 460; DB 3; Length 274; 98.9%; Pred; No. 9.9e 51; : Indels 0; Mismatches Ouery Match Best Local Similarity 98.9% Warehos 90; Conservative

San Ċ 2 FPTIPLSRLFDNAMLRAHRLHQLAFOTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 6:

q

US-08-784-582 73 ; Sequence 73, Application US/08784582 ; Patent No. 6110707 GENERAL INFORMATION: RESULT 13

APPLICANT: NEWARDIAGE
APPLICANT: NEWARDIAGE A.
APPLICANT: Halban, Philippe A.
APPLICANT: Clark, Samuel A.
APPLICANT: Clark, Samuel A.
APPLICANT: Thiqpen, Anice E.
APPLICANT: Thiqpen, Anice E.
APPLICANT: Wedary, Dennis
APPLICANT: McGarry, Dennis
TITLE OF INVENTION: SECRETORY CEL: LINES
NUMBER OF SEQUENCES: 79

CURRESPONDENCE ADDRESS: ADDRESSEE:

5: Arnold, White & Durkee P.O. Box 4433 Houston Texas STREET COUNTRY: STATE

77210

MEDIUM TYPE: Floppy disk
COMPUTER: 1BM PC compatible
COMPUTER: SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURKENT APPLICATION DATA:
APPLICATION NUMBER: US/08/784,582 COMPUTER READABLE FORM:

2 FPTIPLSRLFDNAMLRAHRIHQLAFDTYQEFFEAYIPKEQKYSFLQNPOTSLSFSESIPT ; 0 Length 360; l; Indels Ouery Match 97.9%; Score 460; DB 3; Bost Local Similarity 98.9%; Pred. No. 1.4e 50; Matches 90; Conservative 0; Mismatches 1; CLASSIFICATION 435
PRIOR PAPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
FILING DATE: 15-OCT-1996
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/589,028
FILING DATE: 19-JAN-1996
ATTORNEY/AGGENT INFORMATION:
NAME: Highlander, Steven I.
REGISTATION NUMBER: 37,642 Concurrently Herewith REGISTRATION NUMBER: 37,642
REFRENCE/COOKER UNMBER: UTSD:514
TELECOMMUNICATION INFORMATION:
TELECHONE: 512/418-3000 TELEPHONE: \$12/418-3000
TELEFAX: \$12/474-757
INFORMATION FOR SEC 10 NO 73:
SEQUENCE CHARACTERISTICS: 360 amino acids amino arid linear STRANDEDNESS FILING DATE: US-08-784-582-73 FOPOLOGY: LENGTH

27 FP11PLSRLFUNAMIRAHKLHQLAFUTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86 HILLITTILITTILITTILITTILITGSMLEPVQ 117 62 PSNREFTQQKSNLELLRISLLLIQSWLEPVQ 92 a ŝ a

ö

Gaps

Sequence 1, Application US/09465461 Patent No. 6348444 US-09-465-461-1 RESULT 14

GENERAL INFORMATION:
APPLICANT: CHAPPEL, Scott
APPLICANT: CHAPPEL, Scott
TITLE OF INVENTION: Human Growth Hormone to stimulate hematopoiesis and amune reTITLE OF INVENTION: Human Growth Hormone to stimulate hematopoiesis and amune reTITLE OF INVENTION: Human Growth Hormone to stimulate hematopoiesis and amune reTITLE OF INVENTION: Human Growth Hormone to stimulate hormone in humans
FILE REFERENCE: CHAPPEL-6.1
CURRENT FILING DATE: 1999-12-17
PRIOR PELLING DATE: 1999-12-17
PRIOR PELLING DATE: 1999-12-17
NUMBER OF SEO 1D NOS: 1
SOFTWARE: Patentin version 3.3

ORGANISM: homo sapiens LENGTH: 191 US 09-465-461-1 IYPE: PRT

96.6%: Score 454; DB 4; Length 191; 97.8%; Pred, No. 3.5e-50; 2; Indels 0; Mismatches Ouery Match Best Local Similarity 97.88

2 PPTIPLSELFENAMLRAHRIHQLAFDTYQEFEEAYIPKEQKYSFEQNPQTSLSFSESIPT 61

ć

ó

Gaps

.,

9

| FPTIPLSRLF...MASLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 62 PSNREETQQKSNI,ELLRISI,LLIQSWLEPVO 92 61 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 91 a ò

; Sequence 4, Application US/08187756C RESULT 15 US-08-187-756C-4

```
Ouery Match 96.5%; Score 454; JB 1; Length 217;
Best Local Similarity 97.8%; Pred. No. 4.2e-50;
Matches 89; Conservative 0; Mismatches 2; Indels 0; Gaps
Patent No. 5597709
GENERAL INFORMATION:
APPLICANT: ROSEM:
1TILE CO INVENTION: Human Growth Hormone
NUMHER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS: 7
CORRESSE: CECCHI, STEWART & OLSTEIN
SIREET: & BECKER FARM ROAD
CITY: ROSELAND
STATE: NEW JERSEY
COUNTRY: USA
ZIP: 0706M:
REDIUM TYPE: 3.5 INCH DISKETTE
                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM ES/2
OPERATING SYSTEM, MS-CASS
SOFTWARE: WORD PEREOFF 6.1
CURRENT AND ICATION NUMBER: US/UB/197, 35-07
ELLING DATE: January 27, 1994
CLASSIFICATION: 435
PRIOR APPLICATION A35
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING SATE:
FILING SATE:
ATTORIES/ASTRT INFORMATION:
NAME: FERRARO, GREGORY D.
RESISTRATION NUMBER: 325800-55
TELECOMMUNICATION INFORMATION:
TELEBONE: 201-994-1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: 201-994-1744
INFORMATION POR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
FENGTH: 217 AMINO ACHOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: LINEAR
MALECULE TYPE: PROTEIN
US-08-187-7560-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: AMINO ACID
STRANDEDNESS:
```

0

a ò đ

62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

Search completed: September 15, 2003, 12:05:31 Job time: 22.1039 secs

GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.

OM protein - protein search, using sw model

September 15, 2003, 12:03:35; Search time 38.5806 Seconds Run on:

(without alignments) 347.945 Million cell updates/sec

1 MEPTIPLSRLFDNAMLKAHR......nletlristalioswlehvo 32 US-09-423-100-2 470 Title: Perfect score: Sequence:

BLCSUM62 Scoring table:

Gapop 10.0 , Gapext 0.5

541936 seqs, 145912426 residnes Searched:

11.11.

Minimum OB seq length: 0 Maximum OB seq length: 2000000000

Total mader of hits satisfying phoson parameters:

Listing first 45 summaries Post-processing: Minimum Match 6% Maximum Match 100%

Database :

Published_Applications_AA:*
| cqn2_6/ptodata/1/pubpaa/USG7_PUBGCOMB.pvp:*
| cqn2_6/ptodata/1/pubpaa/USG7_PUBGCOMB.pvp:*
| cqn2_6/ptodata/1/pubpaa/USG6_PUBCOMB.pcp:*
| cqn2_6/ptodata/1/pubpaa/USG6_PUBCOMB.pcp:*
| cqn2_6/ptodata/1/pubpaa/USG6_PUBCOMB.pcp:*
| cqn2_6/ptodata/1/pubpaa/USG8_PUBCOMB.pcp:*

/cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score areafor than or egoal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

		æ				
Result No.	Score	Ouery Match	Duery Match Length DB	53	1.0	Description
-	470	100.0		. 7	US-10-054-8 : < 2	Sequence 2, Appli
~	470	100.0	_	14	US-10-054 8,3-7	
••	460	97.9	191	7	US-09:984-010-23	23,
4	460	97.9		12	US-10-153 207-1	_
√	460	97.6	191	12	US-10-400-377-1	_
9	460	97.9		12	US-10-400-708-1	,
7	460	97.9		12	US-10-153-207-6	Sequence 6, Appli
œ	460	97.6		6	US-09-929-918-9	~
5	460	97.9		6	US-09-280-030-66	Sequence 56, Appl
10	454	9.96	•	6	US-09-853-688-2	
7	454	9.96		12	US-09-969-748C-4	Sequence 4, Appli
12	453	96.4		10	US-09-804-409A-16	Sequence 16, Appl
13	447	95.1		6	US-09-853-688-4	Sequence 4, Appli
14	444	94.5		12	US-09-824-200-12	Sequence 12, Appl
15	368	84.3		6	US-09-850-887-3	Sequence 3, Appli

16	381	81.1	163	15	US-10-043-487-350	Sequence 3.0, App
17	381	81.1	191	12	US-10-153-207-2	Sequence 2, Appli
18	373	79.4	225	15	-10-103-313-	
19	345	73.4	246	15	-10-188-246-	Sequence 18, Appl
20	301.5		190	17	-10-153-207-3	
21		55.3	4.5	14	US-10-054-873-1	
22	260	55.3	107	7	US-10-054-873-6	•
23	7.4	37.1	88	5	US-10-191-879-19	_
24	174.5	37.1	213	15	US-10-191-879-10	_
25	162	34.5	135	15	US-10-043-467-337	337,
56	161.5		366	10	US-09-887-569A-2	Sequence 2, Appli
27	5.	34.4	388	12	US-:0-322-746-4	~
28	142	30.2	2.	σ	_	14,
29	131	27.9	198	2	293-3	32,
3.0	126	26.8	199	15	63-3	33
3.1	125	25.6	199	15		26,
32	125	25.6	199	ζ:	63-5	27,
~	124	25.4	166	<u></u>	93.3	31,
7	123	26.2	199]	US-19-140-293-22	22,
r *	132	26.0	143	5	7-86	21,
ţ	Ξ.	25.9	1.25	7		25,
3.7	121.5	6.57	208	<u></u>	08-10-191879-2	7
88	7	25.9	253	Ξ		7
6 ,	119	25.3	199	15	7-85	24,
40	118	25.1	199		-10-140-293-	18,
4]	118	25.1	199	15	-10 - 140 - 293	19,
4.2	1:7	24.9	197		$-10 \cdot 140 \cdot 243$	15,
43	1:6	24.7	197	15	-10-140-	13,
44	13.6	7 4 7	90	1	-10-153-207	4 . 4
4.5	116	24.7	149	13	-10-140-293	20,
					ALIGNMENTS	
RESULT 1						
US-10-054-873-2	4-873-2					
: Sequen	ice 2, Ag	Sequence 2, Application US/1005487 Publication No. HS2002016471241	on US/ 201647	1005	4873	
GENE	RAL INF	GENERAL INFORMATION:				
	APPLICA		, Zhon	9 R.		
	TITLE	OF INVEN	INVENTION:	Chi.	Chimeric Protein Containing	an Services
			0.00	Inti	Intramolecular Chaperone-Luxe sequence	xe Sednence
	NUMBER OF		SECUENCES:	_		

ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor NUMBER OF SEQUENCES: / CORRESPONDENCE ADDRESS:

CITY: San Francisco STATE: California COUNTRY: USA ZIP: 94111-1834 COMPUTER READMALE FORM: MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Pt. CDS/MS.1035
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10,054,873
FILING DATE: 22-Jan -2002
CLASSIFICATION: <Unknown>

APPLICATION NUMBER: WO PCT/CN98/00052 FILING DATE: 31-MAR-1998 APPLICATION NUMBER: US 09/423,100 FILING DATE: 11-DEC-2000 PRICE APPLICATION DATA:

NAME: Mycroft, Frank J REGISTRATION NUMBER: 46,946 REFERENCE/DOCKET NUMBER: 020167-000130US ATTORNEY/AGENT INFORMATION:

LENGTH: 92 amino acids SEQUENCE CHARACTERISTICS TYPE: amino acid INFORMATION FOR SEQ ID NO:

q

Saps

ö

ò a ò QQ

Ö 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSF1P 50 .. Length 150; Indels 100.0%; Score 470; DB 14; 100.0%; Pred. No. 4.1e-46; 0; Mismatches 92; Conservative Ouery Match Best Local Similarity Matches 92: Conserval US-10-054-873 7 ò

FILING DATE: 1994-02-02 APPLICATION NUMBER: 07/960,227

PRIOR PRIOR

TPSNREETQOKSNLELLRISLLLIQSWLEPVO 92

q ò

PRIOR

APPLICATION NUMBER: 08/190,723

CORRESPONDENCE ADDRESS: ADDRESSEE: FINNEGAN, HENDERSON, FARABOM, GARRETT & DUNNER, LLP APPLICANT: Ballance, David James TITLE OF INVENTION: RECOMBINANT FUSION PROTEINS TO GROWTH HORMONE AND SERUM ALBUMIN COMPUTER: 1BM PC compatible OPERATING SYSTEM: PC-NOS/MS-FW-S SOFTWARE: Patentin Release #1.0, Version #1.30 (EPU) CURRENT APPLICATION DATA: Length 191: Indels 97.9%; Score 460; DB 11; ilarity 98.9%; Pred. No. 7.8e-45; Conservative 0; Mismatches 1; 61 TPSNREETQOKSNLELLRISLLLIQSWLEPVQ 92 62 PSNREETQQKSNLHLLRISLLLLQSWLEPVQ 92 APPLICATION NUMBER: PCT/GB96/03164 FILING DATE: 19-DEC:1996 APPLICATION NUMBER: US/09/984,010 FILING DATE: 21-May-2002 PRIOR APPLICATION DATA: APPLICATION NUMBER: US 09/091,873 FILING DATE: 25-JUN-1998 APPLICANT: Brian C. Cumingham
TITLE OF INVENTION: GROWTH HORM NE VARIANIS
FILE REFERENCE: 669.12-05-07
CURRENT APPLICATION NUMBER: US/10/153,207
CURRENT FILLING DATE: 2002-05-22
PRIOR APPLICATION NUMBER: 08/479,884
PRIOR FILING DATE: 1995-06-07 SEQUENCE DESCRIPTION: SEQ ID NO: 24: Sequence 23, Application US/09984010 Publication No. US20030104578A1 ZTP: 20065-4415 CAMPTER READABLE FORM; MEDIUM TYPE: Floppy disk SECUENCE CHARACTERISTICS: LENGIH: 191 amino acids Sequence 1, Application US/10153207 Publication No. US20030153003A1 GENERAL INFORMATION: STRANDEDNESS: < Unknown> 1300 : Street, INFORMATION FOR SEQ ID NO: 23: GENERAL INFORMATION: TOPOLOGY: linear MOLECULE TYPE: protein TYPE: amino acid CITY: Washington NUMBER OF SECUENCES: We] s COUNTRY: USA HYPOTHETICAL: NO ANTI-SENSE: NO Best Local Similarity Matches 90; Conserv APPLICANT: James A. APPLICANT: Brian C JS-09-584-010-23 05-09-984-0:0-23 08-10-153-207-1 Ouery Match Ω ć g

```
; ORGANISM: Homo Sapiens
US-10-153-207-6
                                                                                                                                                                                                                                       ORGANISM: Homo sapiens
                                                                                                                                                                                              LENGTH: 191
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 8
US-09-929-918-9
                                                                                                                                                                                                                                                           US-10-400 · 708-1
                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   i
Di
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                       2 FPTTPLSKLEDNAMLKAHRUBOLAFOTYOFFFFAYTPKEGKYSFLONFOTSLSFSES;PT 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYÖFFEEAYIPKEQKYSFLONPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                 Or Salt's
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
APPLICANT: GOX III. George N
APPLICANT: GoX III. George N
TITE GO GONGE BLOLECHNOLOGY, Inc.
TITE GF INVENTION: DETIVATIVES Of GIOWTH HORMONE and Related Proteins
FILE REFERENCE: 4152-1-PUS
CUMENT APPLICATION NUMBER: US/10/400,377
CUMENT FILING DATE: 2003-03-26
PRICH FILING DATE: 2000-01-14
PRICH FILING DATE: 2000-01-14
PRICH FILING DATE: 1997-07-14
NUMBER: GF SEQ II: NGS: 41
SOFTHANKE: PALENTIN NOWER: 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              J; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Cox III, George N
APPLICANT: Bolder Biotechnology, Inc.
TITLE OF INVENTION: Derivatives of Growth Hormone and Related Proteins
FILE REFERENCE: 4152-1-PUS
                                                                                                                                                                                                                                                                                                                 97,34, Store 450: TR by Lough 191; 98,34, Prot No. 7,86,45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match 97.9%; Score 460; DB 12; Length 191; Best Local Similarity 98.9%; Pred. No. 7.8e 45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1; Indels
                                                                                                                                                                                                                                                                                                                                                          :: tudels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62 PSNREETQOKSNLELLRISILLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 PSNREETQQKSNLELLRISLLLJQSWLEPVC 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6. PSNREETQOKSNLELLRISLLLIGSWLEPVO 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                              0; Misautones
PRIOR FILING DATE: 1992-10-13
PRIOR APPLICATION NUMBER: 07/875,204
PRIOR FILING DATE: 1992-04-27
PRIOR FILING DATE: 1992-04-27
PRIOR APPLICATION NUMBER: 07/428,065
PRIOR APPLICATION NUMBER: 07/264,611
PRIOR FILING LATE: 1988-10-26
PRIOR FILING LATE: 1988-10-28
NUMBER OF SED IO NOS: 20
SOFTWARE: FUSICE ION WINDOWS VERSION 4.0
SED ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; Sequence 1, Application US/10400708
; Publication No. US20030166865A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            : Sequence 1, Application US/10490377
; Publication No. US20630162949A1
                                                                                                                                                                                                                                                                                                                                       Best Loca, Similarity 98,4
Matches 90; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90; Conservative
                                                                                                                                                                                                                                 // TYPE: PRT
// ORGANISM: Homo Sapiens
US-10-154-207-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PR1
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 1
LENGTH: 191
                                                                                                                                                                                                               LENGIH: 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-400-377-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-400 377-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08-10-400-798-1
                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                        qa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
```

```
ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 FPTIPLSREEDNAMLRAHREHQLAFDTYQEFEBAYIPKEGKYSELGNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 FPTIPLSRLF: NAMLRAHRLHQLAFDTYUFFEEAYIPKEOKYSFLQNPQTSLSFSFSIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24 FPTIPLSRLFDNAMLKAHRLHQLAFUTYQEFERAYIPKEQKYSFLQNPQTSLCFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                     Length 191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97.9%; Score 460; DB 12; Length 214; 98.9%; Pred. No. 9e-45;
                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                Query Match 97.9%; Score 460; DB 12; Best Local Similarity 98.9%; Pred. No. 7.8e 45; Matches 90; Conservative 0; Miscalcines 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: James A. Wells
APPLICANT: James A. Wells
APPLICANT: Brian C. Cunningham
TITLE REFERENCE: 669.12-05-07
CURRENT APPLICATION NUMBER: US/10/153,207
CURRENT APPLICATION NUMBER: 08/479,884
PRIOR APPLICATION NUMBER: 08/479,27
PRIOR FILING DATE: 1994-02-02
PRIOR FILING DATE: 1992-10-13
PRIOR FILING DATE: 1992-04-27
PRIOR FILING DATE: 1992-04-27
PRIOR APPLICATION NUMBER: 07/428,066
PRIOR FILING DATE: 1994-02-06
PRIOR APPLICATION NUMBER: 07/264,611
PRIOR APPLICATION NUMBER: 07/264,611
PRIOR PRIING DATE: 1989-10-28
NUMBER: OF SCOID NOSE: 20-028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0: Mismarches
: CURRENT APPLICATION NUMBER: US/10/40C,708
: CURRENT FILING DATE: 2003-03-26
: PRIOR APPLICATION NUMBER: US/09/462,941
: PRIOR FILING DATE: 2000-01-14
: PRIOR FILING DATE: 1997-07-14
: PRIOR FILING DATE: 1997-07-14
: NUMBER OF SEQ ID NOS: 41
: SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 6, Application US/10153207
Publication No. US/20030153003A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 98.96
Matches 90; Conservative
```

```
115 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 145
                                                                                                                          Sequence 2, Application US/09851688
Patent No. US20020081605A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96.68;
97.88;
                                                                                                                                                                                                                                                                                                                                                                                                         SOFIWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 97.8
Matches 89; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           : ORGANISM: Homo sapiens
US-09-853-688-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-969-748C-4
                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO 2
LENGTH: 217
                                                                                 RESULT 10
US-09-853-688-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       급
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 66, Application US/09280C30A
Patent No. US20010021515A1
CENERAL: INFORMATION:
APPLICANT: Sato, Seiji
APPLICANT: Sato, Seiji
APPLICANT: Higashikuni, Nachiko
APPLICANT: Kondo, Masaaki
TILLE OF INVENTION: DASSANIKA
FILLE KERENCE: 382.1026
CURRENT FILLING DATE: 1999-01-26
EARLIER FILLING DATE: 1999-01-26
EARLIER FILLING DATE: 1998-03-31
NUMBER OF SEQ ID NOS: 66
SOFTWARE: PATENTIN OF C. 2.0
SEQ ID NO 66
LENGTH: 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .;
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 FPTIPLSRLFDNAMLRAHRLHQLAFUTYÖEFEEAYIPKEQKYSFLONPOTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEA..PKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: Description of Artificial Sequence: Designated is OTHER INFORMATION: an amino acid sequence of MWPSp-MMPmp20-TEV-G-GH
Sequence 9, Application US/0992918
Patent No. US20020096678A1
GENERAL INFORMATION:
APPLICANT: Kordyum, Vitaliy A.
APPLICANT: Chernykh, Svitlana I.
APPLICANT: Slavchenko, Iryna Yu.
APPLICANT: Slavchenko, Iryna Yu.
APPLICANT: Slavchenko, Iryna Yu.
TITLE OF INVENTION: BLOLGGCALLY ACTIVE PROTEIN AND PEPTIDES
TITLE OF INVENTION: BLOLGGCALLY ACTIVE PROTEIN AND PEPTIDES
TILE NEFERENCE: PHAGE.OB6A
CURRENT APPLICATION NUMBER: US/09/929,918
CURRENT APPLICATION NUMBER: US/09/929,918
PRICK APPLICATION NUMBER: 09/318,288
PRICK APPLICATION NUMBER: 09/318,288
PRICK FILING DATE: 1999-05-25
NUMBER OF SKO ID NOS: 11
SOFTWARE: FastisEO for Windows Version 4.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 450; D8 9; Length 217;
Pred. No. 9.2e-45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97.9%; Score 460; DR 9; Length 245; 98.9%; Pred. No. 1.1e-44;
tive 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62 PSNREETOGKSNLELLRISLILLIQSWLEPVQ 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 PSNREETQOKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97.9%;
98.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
Best Local Similarity 98.91
Matches 90; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match
Best Local Similarity 98.99
Watches 90; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: FR1
ORGANISM: Nome Sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-280-030-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08-09-280-030-66
                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 217
                                                                                                                                                                                                                                                                                                                                                                                                                                              6 816-526-60-SD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
```

```
APPLICANT: HOUSTON, LOU, L.
APPLICANT: SHERIDAN, Philip, J.
APPLICANT: HAWLEY, Stephenine, M.
APPLICANT: GLYNN, Jacqueline, M.
APPLICANT: CHAPIN, Steven
APPLICANT: CHAPIN, Steven
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE TRANSPORT OF BIOLOGICALLY ACTIVE OF INVENTION: CAMPOSS CELLILLAR BARRIERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 FPTTPLSRLFDNAMLAAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNFOTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Gaps
GENERAL INFORMATION:
APPLICANT: COOPER, DAVID N.
APPLICANT: COOPER, DAVID N.
APPLICANT: GREGORY, ANNIE M.
APPLICANT: GREGORY, JOHN S.
TITLE OF INVENTION: METHOD FOR DETECTING GROWTH HORMONE VARIATIONS IN TITLE OF INVENTION: HUMANS, THE VARIATIONS AND THEIR USES FILE REFERENCE: WCM78
CURRENT APPLICATION NUMBER: US/09/853,684
NUMBER OF SEQ ID NOS: AC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9£.5%; Score 454; DB 9; Length 217; 97.8%; Pred, No. 4.5e 44; live 0; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 454; DB 12;
Pred. No. 4.5e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismutches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILE REFERENCE: 05/220-0303
CURRENT APPLICATION NUMBER: US/09/969,748C
CURRENT FILING DATE: 2002-12-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR PELING DATE: 2000-11-14
PRIOR FILING DATE: 2000-11-14
PRIOR PELLING DATE: 2000-11-14
PRIOR APPLICATION NUMBER: US 60/248,478
PRIOR FILING DATE: 2000-11-13
PRIOR FILING DATE: 2000-10-02
NUMBER OF SEQ 1D NOS: 115
SOFTWARE: PATENTIN VERSION 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 4, Application US/09969748C
Publication No. US20030161809A1
GENERAL INFORMATION:
APPLICANT: ARIZEKE PHARMACEUTICALS, INC.:
APPLICANT: HOUSTON, LOW, L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: US 60/267,601 PRIOR FILING DATE: 2001-62-09
```

```
US-09-824-200-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-85C-887-4
                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE:
                                                                                                                    RESULT 14
                       င်
                                                       G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Db.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ď
   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                   2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                       2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1) FPTIPLSRLFDNASLRAHRLHQLAFDTYQEFGEAYIPKEQKYSFLQNPQTSLCFSESIPT 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 FPTIPLSRLFUNAMLRAHRLHQLAFUTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: CROPER, DAVID N.
APPLICANT: PROCIEE, ANNIE M.
APPLICANT: GREGORY, JOHN
APPLICANT: MILLAR, DAVID S.
ITTLE OF INVENTION: METHOD FOR DETECTING WITH HORMONE VARIATIONS IN
TITLE OF INVENTION: HUMANS, THE VARIATIONS IN
FILE REFERENCE: WCM78
                                                                                                                                                                                                                                                                                                                                        POR REGULATED PROTEIN
 ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .;
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match 56.4%; Score 453; DB 10; Length 217; Corn Similarity 97.8%; Pred. No. 5.8e 44; es 89; Conservative 0; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match 95.1%; Score 447; 138.9; Le Best Local Similarity 96.7%; Pred. No. 1.8e-43; Matches 88; Conservative 0; Mismatches 3;
 ;
;
                                                                                                                                HILL HILLHILLHILL HILLHILLHILLHI
87 PSNREETQOKSNLELLRISLLLIQSWLEPVO 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-804-4094.16
Sequence 16. Application US/09804409A
Sequence 16. Application US/09804409A
GENERAL INFORMATION
APPLICANT: CHERROR THWTHY J.
APPLICANT: CHERROR TOWNENTY J.
TITLE OF INVENTION: CAMPGESTIC AND OFFICE OF TITLE OF INVENTION: EXPRESSION IN 3UT
FILE REFERENCE: 025996/027 8721
COMPANY APPLICATION UMBER: US/09/864,409A
COMPANY APPLICATION UMBER: US/09/864,409A
COMPANY FILING DATE: 2001-03-12
                                                                                                            62 PSNREETQQKSNLELLRISLILIQSWLEPVQ 92
 0; Mismatc: s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT AFFLICATION NUMBER: US/09/853,588 CURRENT FILING DATE: 2001-05-14 NUMBER OF SEQ ID NOS: 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 4, Application US/09853688
Patent No. US20020081605Al
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFIWAKE: Patentin Ver. 2.1
SEO ID No. 4
 89; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRI
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-804-404A 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 217
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ 1D No 16
LENGTH: 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-853-688-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-853-688-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
Matches
                                                                                                                                                                                                     RESULT 12
                                                                                                            ò
                                                                                                                                              pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
```

```
2 FPTIPLSKLFDNAMLRAHK GOLAFUTYGEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: RUSSELL DOUGLAS A.
APPLICANT: SCLLITTER, MICHAEL
TITLE OF INVENTION: POLYPEDITUES FROM PLANTS
OURRENT APPLICATION WINERER: US/09/824.2 **
CURRENT APPLICATION WINERER: DO104.0 **
PRIOR APPLICATION WINERER: BOX194.217
PRIOR APPLICATION WINERER: BOX194.217
NUMBER OF SEQ ID NOS: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: (al. Prott)
Corley, Nell C.
Cordono, Gina
TITLE OF INVENTION: THYROLD AND FITULIARY MEMBRANE PROTEIN
NUMBER OF SEQUENCES: 4
CORRESPONDINGE ADDRESS:
ADDRESSEE: INCYTE PHARMAGEUT(CALS, INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 191:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Word Perfect 6.1 for Windows/MS-DDS 6.2 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/850,887
FILING DATE: 07 May-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 444; DB 12;
Pred. No. 5.3e-43;
0: Mismatches 3;
                         PSNREETOOKSNLELLRISLLLJOSWLEPVQ 117
7.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62 PSNREETQQKSNLELLKISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62 PSNREETQOKSNLELLRISLLLIQSWLEPVQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC DOS/MS:DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA: APPLICATION NUMBER: 09/087,678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: CERRONE, MICHAEL C. REGISTRATION NUMBER: 39,132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET: 3174 PORTER DRIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: <Unknown>
                                                                                                                                                                     ; Sequence 12, Application US/09824200
; Publication No. US20030167531A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1, Application US/09850887
Patent No. US20026009778Al
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: <Unknown> ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  94.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: CALIFORNIA COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match

Best Local Similarity 96.7*
Matches 88; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: PALO ALIO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : ORGANISM: Homo sapiens
US-09-824-200 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ZIP: 94304
```

0

```
REFERENCE/DOCKET NUMBER: PF-0535 US
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMINICATION:
TYPE: Amino acid
SEQUENCE CHARACTERISTICS:
LENGTH: 217 amino acid
TYPE: amino acid
TY
```

Search completed: September 15, 2003, 12:24:35 Job Lime - 38,5806 secs

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

OM protein : protein search, using sw model

September 15, 2003, 11:56:45; Search time 15,1685 Seconds (without alignments) 583.284 Million cell updates/sec Run on

US-09-423-100-2 470 1 MFPTIPLSRLFDNAMLRAHR..........N.EI.LRISI.LLIGSWI.EPVÜ 92 Title: Perfect score: Sequence:

BLOSUM62 Scoring table:

24.488 seqs, 96158687 res, hes Gapop 10 0 , Sapexi 0, 1 Searcivel

283408 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 6 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

pirl:* Fir2:* pir3:* PIR_76:*
1: pir1:*
2: pir2:*
4: pir3:* pir4:* Database

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

		œ			SOMMAN	
Result.	or cons	Cuery	4000	2	2	4
	21000			<u>.</u>		Description
1	460	97.9	217	_	STHU	somatotropin 1 pre
7	460		217	~	167410	somatotropin the
m	422	8.68	217	_	STHUV	~
4	422	86.8	256	~	STHUV2	somatotropic 2 pre
i.c	402	85.5	217	~	167411	somatotropin rhe
9	397	84.5	217	7	I67409	chorionic somatoma
7	356	84.3	212	~	167408	chorionic somatoma
ထ	3,6	84.3	217	~	153267	chorionic somatoma
5	381	81.1	217	_	LCHUC	choriomammot.topin
10	381	81.1	217	7	E32435	chor iomammotropin
=	359.5	76.5	215	7	A26449	choriomammotropin
12	310.5	66.1	216	~	B49159	somatetropin qol
13	307.5	65.4	160	~	PN0140	somatetropin - se:
14	504.5	64.8	216		STMS	somatotropin precu
15	302.5	64.4	190	~	STHO	somatotropin - hor
16	102.5	64.4	216	-	STRT	somatotropin precu
17	305.5	64.4	216	~	S49483	somatotropin precu
8	301.5	64.1	190	~1	JKC219	somatotropin - Afr
19	101.5	64.1	216	-	STPG	somatotropin precu
20	301.5	64.1	216	~	146145	somatotropin precu
21	301.5	64.1	216	~	JC4632	somatotropin precu
2.5	299.5	63.7	216	7	A37782	somatotropin precu
23	297.5		190	_	A61584	somatotropin - alp
24	295.5	65.3	190	7	JS0429	somatotropin - Arc
25	289.5	61.6	217	-	STBO	somatotropin precu
5 6	289.5	61.6	217	~	STSH	somatotropin precu
27	286.5	61.6	217	_	STGT	somatotropin precu
28	289.5	61.6	217	7	S32682	somatotropin dom
29	278.5	59.3	216	7	JC1514	somatotropin precu

ᲓᲡᲡᲓᲓᲓᲓ�������������������������������	~	2 A60625	2 S04929 somatotropin	2 S21750 somatotropin	2 A55816	2 151188 somatotropin	2 JS0037	2 B32435 choriomammetre	2 I51250 s	2 A60623 somatotropin	E	2 Jf0483 somatotropin	2 JN0387 somatotropin -	2 JC5682 somatotropin -	~	2 S38351 somatotropin -
						•										

ALLENMENES

RESULT 1

STHU	
somatot	somatotropin precursor [validated] - human
N;Alter	N;Alternate names: growth hormone 1; hGH-N; pitcitary somatotropin
NCConta	N:Centains: growth hormone 5K peptide: somatetropin 1, leng form: somatetropin 1, s
C; Specia	C.Species: Homp sapiens (man)
C;Date:	C.Date: 24.Apr-1984 *Sequence_revision 10.Feb-1995 *Lext_change 08.Dec-2000
C:Acces:	C:Accession: A93731; A32435; A93644; A94247; A90651; A93397; A93778; A91764; A90217
R; DeNot	R; DeNoto, F.M.; Moore, D.D.; Goodman, H.M.
Nucleic	Nucleic Acids Res. 9, 3719-3730, 1981
A; Tit.le	A; Title: Human growth hormone DNA sequence and mrKNA structure: possible alternative
A; Refer	A;Reference number: A93731; MUID:82014939; PMID:6269091
A: Acces:	A:Accession: A93731
A:Molec	A;Molecule type: DNA
A; Resid	A; Residues: 1-217 <den></den>
A; Cross	A;Cross-references: GB:V60520
A; Note:	A; Note: the 20K short form somatotropin lacks residues 58-72 (32-46 in the active h
R;Chen,	R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seebur
Genomic	Genomics 4, 479-497, 1989
A; Title	A; Title: The human growth hormone locus: nucleotide sequence, biology, and evolutio
A: Refer	A;Reference number: A32435; MillO:89367277; PMID:2744760

A; Keterence number: A324 % Mills: 69% 07277; PMID: 2744760
A; Accression: A724 %
A; Accression: A724 %
A; Mesidews: 1.217 CGBS
A; Mesidews: 1.217 CGBS
A; Cross references: GBS: US 971; NTD: 4183148; PIDN: AAA52549. i; P11: 9183:49
A; Cross references: GBS: US 973; NTD: 4183148; PIDN: AAA52549. i; P11: 9183:49
B; ROSKAM, W.: Rougeou, F.
A; Rocession: A93694
A; Reference number: A93694; MUDD: A0034477; PMID: 486281
A; Recression: A93694
A; Molecule type: MRNA
A; Reference number: A93694
A; Molecule type: MRNA
A; Residues: 1-217 CROS>
A; Cross references: GB: VuoS19
A; Molecule type: Maxter. J.D; Goodman, H.M.
Science 205, 602-607, 1979
A; Martial, J.A.: Hallewell, R.A.: Baxter. J.D; Goodman, H.M.
Science 205, 602-607, 1979
A; Title: Human growth hormone: complementary DNA cloning and expression in bacteria A; Reference number: A94247; MUD: 79203293; PMID: 47496

A. Molecule type: mRNA
A. Residues: 1-27 cMAR>
A. Residues: 1-27 cMAR>
A. Residues: 1-27 cMAR>
B.Liu, C.H.: Dixon, J.S.: Liu, W.K.
Arch. Biochem. Biophys. 133, 70-5, 1969
A.Title: Human pituitary growth h. rmone, XIX. The primary structure of the hormone. A. Reference number: A0048; MUID: 9289202; PMID:5810834
A. Contents: annotation
A. Rith. C.H.: Dixon, J.S.
Arch. Biochem. Biophys. 146, 233-236, 1971
A. Title: Human pituitary growth hormone. XXIII. The primary structure of the hormone A. Reference number: A90051; MUID:72143935; PMID:5144027
A. Reference number: A90051
A. Molecule type: protein

```
C.Accession: 167410; A05094
R.Golos, T.G.; Durning, M.; Fisher, J.M.; Fiw.er, P.D.
Endocrinology 133, 1744-1752, 1993
A.Tille: Cloning of tour growth hormone/chorionic somatomammotropin-related compleme
               C:Comment: The gene for this hormone is transcribed only in somatotrophic cells of C:Comment: About 90% of somatotropin is the 22K long form.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                               C;Superfamily: prolactin
C;Keywords: alternative splicing; normone; pituitary
F;1-25/Domain: signal sequence #status predicted <SIG>
F;27-21/7/Product: somatotropin 1, long form #status experimental <SOL>
F;27-69/Product: growth hormone 5K peptide #status experimental <5KP>
F;27-57,73-217/Product: somatotropin 1, short form #status experimental <SOS>
F;79-191,208-215/Disuifide bonds: *status *xperimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 FPTIPLSRLFUNAMLAAHRIHQLAFDTYGEFEBAYIPKEQKYSFLÖNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLCNPQTSLCFSESIPT 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 FPTIPLSRLFUNAMLRAHKLHQLAFDTYQFFEEAYIPKEQKYSFLQNPQTSLSFSFSIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N.Alternate .:ames: growth hormone
C.Species: Macaca mulatta (Thesus manaque)
C.Date: 31:May-1996 #sequence_revision 31:May-1996 #text_change 16:Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27 FPTIPLSRLFDNAMLKAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQISLCFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATILLE: Preparation of growth hormone from pituitaries of man and monkey kreference number: A4474
A; Contents: annotation: identification of source organism
C; Superfamily: prolactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A:Molecule type: mrna
A:Residues: 1-217 <RES>
A:Cross-references: GR:L:5556; NID:q293114; PILN:AAA18842.1; PID:g293115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rall, C.H.: Chung, D.: Lahm, H.W.; Stein, S.
Arch, Bloochem, Barphys, 245, 287-291, 1986.
A.Title: The primary structure of monkey pilottary growth hormone
A.Reference number: A05094; MUID:86129460; PM:D:3080959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 217:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98.98; Pred. No. 4.40.42; Sve. 3; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97.9%; Score 460; DB 2; Length 21
98.9%; Pred. No. 4.46-42;
Live 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A:Molecule type: protein
A:Residues: 27-99, 'Q', 101-178, 'D', 180-217 <LIC>
A:Note: the monkey species is not identified in the reference
R:Raben, M.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Reference number: 153267; MUID:94008724; PM:D:8404617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 PSNREETQOKS: LELLRISLLI.IQSWLEPVO 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97.98; score 460;
                                                                                                                                                             A:Cross-references: GDB:119982; OMIM:139250
A:Map position: 17q23.1-17q23.3
A:Introns: 4/1; 57/3; 97/3; 152/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A:Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Restinocal Similarity 48.9%
Matches 90: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cuery Match
Best Local Similarity 98.9%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           somatotropin - rhesus maraque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Science 125, 883-884, 1957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Accession: 167410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: A05094
                                                                                                                             A; Gene: GDB:GH1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Maten
                                                                                      C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Richapman, G.E.; Rogers, K.M.; Brittain, T.; Bradshaw, R.A.; Bates, G.J.; Turner, C.; Ca. J.; Biol. Chem. 256, 2395-2401, 1981
J. Biol. Chem. 256, 2395-2401, 1981
A. Paritter: The 20,000 molecular weight variant of human growth hormone. Preparation and sq. A. Reference number: A92311; MuID:81117361; PMID:7462247
A. Contents: Somatotropin, 20K short variant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A:Molecule type: protein
A:Residues: 27.34, %, 36.47 <ROB>
A:Residues: 27.34, %, 36.47 <ROB>
R:de Vos. A.M.: Ultsch, M.; Kossiakoff, A.A.
Science 255, 306-312, 1992
A:Title: Human growth hormone and extra-ellular domain of its receptor: crystal structum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A.Contents: unnocation: somatotropin revis:...
R:Bewley, T.A.; Dixon. J.S., Li, C.H.
Int. J. Pept. Protein Res. 4, 281-287, 1972
A.Title: Sequence comparison of human pituitary growth hormone, human chorionic somatoma A; Reference number: A91764: MUID:73092028; PMID:4675454
A; Accession: A91764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Reference number: 141126; MUID:86137393; PMID:3912261
                                                                                                                                                                                                                   A;Molecule type: protein
A;Molecule type: protein
A;Molecule type: Double M.L.; Sauer, R.; Rosenblum, I.Y.; Greenwood, F.C.
R:Niall, H.D.; Hogan, M.L.; Sauer, R.; Rosenblum, I.Y.; Greenwood, F.C.
Proc. Natl. Acad. Sci. U.S.A. 68, 866-869, 1971
Proc. Natl. Acad. Sci. U.S.A. 68, R66-869, 1971
A;Title: Sequences of pituitary and placental lactogenic and growth hormones: evolution A;Reference number: A93778; MUID:71153968; PMID:5279528
A;Accession: A93778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A:Molecule type: protein
A:Residues: 27-217 <HEW>
A:Residues: 27-217 <HEW>
B:Lewis. 19.01: Honewald, L.F.: Lewis, L.J.
Biochem. 19.04 %. Res. Commun. 92, 511-516, 1980
A:Title: The 26,000-dalton variant of human growth formone: local: ...of the amino acid A:Reference number: A90217; MUID:80136196; PMID:7356479
A:Contents: somatorropin, 20K short variant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A.Note: growth hormone 5K peptide has insulin potentiating activity; its physiological R:Robson, V.M.J.: Rac. I.D.: NG, F. Briston, V.M.J.: Rac. I.D.: NG, F. Briston, V.M.J.: Rope-Seyler 371, 1990 A; File: Identification of the aspartimide structure in a previously-reported peptide. A;Reference number: $09685; MUID:90384745; PMID:2378679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Great Sths,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Reference number: A41728; HUID:92196577; PMID:1549776
A; Contents: annotation; X-ray crystallography, 2.8 angstroms
A; Note: the structure of the complex with prowth hormone receptor is described
R; Gray, G.L.: Baldridge, J.S.; McKeown, K.S.; Heyneker, H.L.; Chang, C.N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A.Molecule type: protein
A.Mesiduse: 27-57:73-79 cHA>
A.Mesiduse: 27-57:73-79 cHA>
B.K.: Singl. R.N.P.: Sravey, B.K.: Lewis, L.J.: Lewis, U.J.
J. Protein Chem. 2, 425-436, 1983
A.Tille: Human growth hormone peptide 1 43: isolation from pituitary glands.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             in Projectin and Caretoouponesis, Proc. Fourth Tecovus Workshop Presentin.
Affile: The checostry of the human jactodenic horsenes.
A;Reference number: A94427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A.Cross.references: GB:M14398; NID:g183158; PIDN:AAA52554.1; PID:g183159
                                                                      Nature New Biol. 230, 90-91, 1971
A'Ille: Kevised primary structure for human growth hormone.
A'Reference number: A93397; MUID:71139765; PMID:5279046
A'Accession: A93397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A.Status: preliminary; translated from GB/EMBL/DDBJ
*Molecule Uype: WRNA
A:Residines: 1-26 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Molecule type: protein
A;Residues: 119-120;157-159 <NI2>
R;Niall, H.D.
A;Residues: 27-94;96-217 <LIC>R;Niall, H.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Molecule type: protein
A;Residues: 46-57;73-80 <LEW>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Reference number: A61466
A;Accession: A61466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Molecule type: protein A; Residues: 27-69 <SIN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Accession: S09685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Accession: A90217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A:Accession: A92311
```

```
NARIERTAGE PROBLEM NATIONAL NA
                                                                                                                                                                                                                                                                                                                                            C.Accession: ASB072

R.Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaber, S.A.
J. Biol. Chem. 263, 9001-9006, 1988

A.Title: Two distinct species of human growth hormone-variant mRNA in the human place A.Reference number: 492725; MUID:88243769; PMID:3379057

A.Reference number: A92725; MUID:88243769; PMID:3379057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 FPT1PLSRLFUNAMLRAHRLHQLAFUTYUEFEEAYIPKEQKYSFLQNPQTSLSFSES1PT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C:Species: Homo sapiens (man)
C:Date: 30~Sep-1989 #sequenco_revision 10·Feb-1995 #text_change 02-Sep-1997
                                                                                                                                       somatotropin 2 precursor, splice form 2 - human
N:Alternate names: growth hormone variant-2; placental somatotropin form 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27 FPTIPISMLENTAVERAHHLAKLAFDTYPKFEERYIPKEÇKYSFLRNPQTSICFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 FPT1PLSRLFUNAMLRAHRLHOLAFDTYGEFEEAY1PKEGKYSFLONPOTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Molecule type: mRNA
A;Rosiduos: 1-217 «RES»
A;Cross-references: GB:Ll6555; NID:g293116; PIDN:AAA20180.1; PID:g2y3117
C;Superfamily: prolactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A:Map position: 17422-1744
A:Introns: 471: 5773: 9773: i5274
C:Superfamily: prolactio
C:Reywords: alternative splicing: hormone: placenta
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-256/Product: somatotropin 2 splice form 2 #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 256;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A Molecula type: mRNA
A:Residues: 1.256 <COO>
A:Residues: 1.256 <COO
A:Residues: 1.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٠.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oucry Match

85,5%; Score 402; DB 2; L
Best Local Similarity 85,7%; Pred. No. 7,80-36;

A. Mismatches 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           89.8%; Score 422; DB 1; 92,38; Pred. No. 6.7e-38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Accession: 167411
A:Status: preliminary; translated from GB/EMBL/ODBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ## PSNKEETQOKSNLELLHISLLIJOSWLEPVO 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62 PSNREETQQKSNLELLRISLLLIQSWLEPVU 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         chorionic somatomammotropin-3 - rhesus macaque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               somatotropin - rhesus macaque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
Somatotropin 2 precursor - human
NiAlternate names: growth hormone 2; growth hormone variant; höil-V; placental somatotrop
NiContains: somatotropin 2, long splice form; somatotropin 2, short splice form
NiContains: somatotropin 2, long splice form; somatotropin 2, short splice form
C; Species: Homo saplens (man)
C; Date: 17-Dec-1982 *sequence_revision 10-Feb-1995 *text_change 21-Jul-2000
C; Accession: D32435; B28072; A01511; 152104; A60711
R; Chen, E.Y.: Liao, Y.C.: Smith, D.H.: Barrera-Saldana, H.A.; Gelinas, K.E.; Seeburg, P. Accession: D447; 1989
A. Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A: Reference number: A32435; Mülü: 99307277; PMID: 2744760
A. Mocession: D443
A. Mocession: D443
A. Messidues: 1-217 < CHE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A.Cross-references: GB.J03071; NID:q183148; PIDN:AAA52552.1; PID:g184152
KCOOKe, N.E.; Ray, J.; Emery, J.G.; Licbhaber, S.A.
J. BJOI, Chem. 253, 9031-9006, 136.6
J. BJOI, Chem. 253, 9031-9006, 136.7
A.Title: Two distinct species of human qrowth horacone variant mPNA in the cumum placenta
A.Reference number: A92725; MULB:RE44769; PMID:847852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: mRNA
A;Residues: 1.217 <CCO>
R;Seeburg, P. H.
DNA 1, 239-249; 1982
A:Tille: The fundan growth hormone qene family: nucleotide segmences show recent divergen
A:Accession: A01511; MUID:83182010; PMID:7169009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-217 < 4160>
A; Reference: F:: Scippo, M.L.; Van Beeumen, U.J. Igout, A.J. Hennen, G. J. Clin. Endocrinol. Metab. 71, 15-18, 1990
A; Title: Identification of placental human growth hormone as the growt: hormone-V gene A; Reference number: A60711; MUID:90317018; PMID:2196278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C.Keywords: alternative splicing, glycoprotein; hormone; placenta
E.1-26/Txomain: signal sequence Estatus predicted <SIG>
E.27-21/Froduct: somatotropin 2, long splice form Estatus predicted <Sugar F:27-57,73-21/7/Product: somatotropin 2, short splice form Estatus predicted <SOS>
E:79-191,208-215/Disulfide bonds: Estatus predicted
E:166/Binding site: carbohydrate (Asn) (covalent) Estatus predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 FPIIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule Type: DNA
A; Residues: 1 4,7P',36-217 <SEE>
K: Jgout, A:: Scippo, M.L.; Frankenne, F.; Henden, G.
Arch. Int., Physiol. Biochim, 96, 63-67, 1988
A:Title: Cloning and nucleotide sequence of placental hGH-V cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A:Molecule type: protein
A:Residucs: 27-44;46-57 cFRA>
A:Experimental Source: Lissue placenta
A:Note: partial quyocosylation was demonstrated by lectin binding
C:Comment: This qene is expressed by the placenta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Reference number: 152104; MUID:89024984; PMID:2460050
A:Accession: 152104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 422; DB 1;
Pred. No. 5.5e-38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A:Accession: 152104
A:Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FPTIPLSRLFDNAMLRARRLYQLAYDTYQEFEEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A:Cross-references: GDB:119983; OMIM:139240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Map position: 17q22-17q24
A;Introns: 4/1; 57/3; 97/3; 152/3
C;Superfamily: prolactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Suery Match
Best Local Similarity 92.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               84: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Accession: B2R072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Gene: GDB:GH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

ö

o;

وا 86

ò

Species: Macaca mulatta (rhesus macaque)

A)Status: preliminary: translated from GB/EMBL/DDBJ A,Molecule type: mRNA A,Residues: 1-217 <RES>

A:Accession: 167409

Best Local Similarity 83.39 Matches 75: Conservative

ò đ ò g

Query Match

63 SNREETOOKSNLELLRISLILIQSWLEPVQ 40

HILLITTILLITTILLITTILLOSMIEPVO

167408

```
Chorismanmestrepin A precursor (validated) - homon

N.Alternate names: chorismic somatomanmestrepin I: placental factogen

C.Speries: Homo saperes (mar. 1992) - 23 cot 1981 atext change GR-Dec-2000

C.Daferias: vot 1981 asequence, revision 23 cot 1983 atext change GR-Dec-2000

C.Accession: C32435; A94422; I52342; A93833; A93192; A90054; A94427; A61283; I55229;

R.Cher, E.Y. Liao, Y.C.; Smith, D.H.; Barrera Saldana, H.A.; Gelinas, R.E.; Seeburg,

Genomics 4, 479-497, 1989

A:Title: The human growth hormone locus: nactootide sequence, tiology, and evolution

A:Reference number: A32435; MUID:89307277; PMID:2744760

A:Accession: C3243

A:Residues: 1-217 ACHE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A:Molecule Lype: mRNA
A;Residues: 1.217 <COO>
B:Tanaka, M:, Masuda, N.: Watahiki, M.: Yamukawa, M.: Shimizu, K.: Nagai, J.; Nakash:
Biochem. Int. 16, 287-292, 1988
A:Title: cDNA cloning of human chorionic somatomammotropin-1 mRNA whose transcription
A:Reference number: 152342, MUID:88209C96; FMID:2835050
A:Accession: 152342
A:Status: translated from GH/FMH:/DDHJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A Molecule type: mRNA
A Mesdudes: 1-3 cTAN
A Cross-references: USH M5419; N1D:q506822
R/Sherwood, L.M.: Barstein, Y.: Schechter, L.
Proc. Natl. Acad. Sci. U.S.A. 76, 3819-3823, 1979
A/Tilla: Primary structure of the NH-2-termina; extra piece of the precursor to human
A/Reference number: A93833; MUID:80034970; PMID:291643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross-references: GB:J03C71; NID:9183148; PIDN:AAA52551.1; PID:9183151
R;Goodman, B.M.; DeNoto, F.; Fiddes, J.C.; Baile*ell, R.A.; Paq.; G.S.; Smith, S.; T<sup>*</sup>
in Mobilization and Reassembly of Genetic Information, Scott, W.A., Werner, R., Josef
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A.Title: Construction and analysis of recombinant UNA for human chorionic somatomiamme. A;Reference number: A93192; MOID:78071761; PMID:593368
A;Accession: A93192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, A;Title: The chemistry of the human lactogenic hormones. A;Reference number: A94427
A;Accession: A94427
                                                                                                                                                .;
0
                                                                                                                                                                                                                                                 3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFERAYIPKEQKYSFLONPOTSLSFSESIPTP 62
                                                                                                                                                                                                                                                                                                       28 PSVPLSRLFDHAMIQAHKLHQLAFDTYQEFEERAYIPKEKKHSLMENPQASFCFADSIPTP 87
                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A.Molecule type: protein
A.Residues: 1,3-26 <SHE>
A.Experimental source: placenta
R.Shine, J.: Seeburg, P.H.: Martial, J.A.: Baxter, J.D.: Goodman, H.M.
Nature 270, 494-499, 1977
                                                                                                                                                ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A:Molecule type: DNA
A:Residues: 50-217 <SHT>
A:Experimental source: placenta
R:Li, C.H.: Dixon, J.S.; Chung, D.
Arch. Biochem. Biophys. 155, 95-110, 1973
A:Title: Amino acid sequence of human chorionic somatomammotropin.
A:Reference number: A90054: MUID:7320:971; PMID:4712450
                                                     Length 217;
Score 396; DB 2; Length Z1:
Pred. No. 3 4e-35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                       63 SNREETQQKSNLELLRISLILIQSWLEPVU 92
                                                84.3%;
82.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Experimental source: placenta
                                          Query Match
Best Local Similarity 82.2%
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Reference number: A94422
A;Accession: A94422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: protein A; Residues: 27-217 <LIC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Accession: A90054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 9
                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QC.
                                                                C.Accession: 16709
R.Golos, T.G.: Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A.Title: Cloning of four growth hormone/chorionic somatomammotropic-related complementar
A.Reference number: 153267; MUID:94008724; PMID:8404617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C:Species: Macaca mulatta (rhesus macaque)
C:Species: Macaca mulatta (rhesus macaque)
C:Accession: 164408
R:Golos, T.G.; Durninq, M.; Fisher, J.M.; Fowler, P.D.
R:Golos, T.G.; Durninq, M.; Fisher, J.M.; Fowler, P.D.
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementar
A:Reference number: 153267; MUID:94008724; PMID:8404617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; Species: Macada mulatta (rhesus madaque)
C; Date: 31 May-1996 #sequence_revision 31 May-1996 #text_change 16-Jul-1999
C; Accession: 153267
R; Golos, T.G.: Durning, M.; Fisher, J.M.; Fowler, P.D.
B; Artitle: Cloning of four growth hormone/chorionic somatomammotropin-related complementar A: Reference number: 153267; MUID: 94008724; PMID: 8404617
A: Accession: 153267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 FTIRESPILEDNAMERABIO DOLAFO EVOETERANTERE OKNOCISES ESTATOTOS. POR CONTRACTO CONTRACTOR DE LO DEL CONTRACTOR DE LA CONTRACTOR DEL CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28 PSVFLSKLFDNIMMQAHRLEGLAFDTYQEFEKTYTPKEKKHSLMGNPQASFGFSESTPTP 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 PT1PLSRLFDNAMLRAHRLHQLAFDTYQEFEEAY1PKEOKYSFLONPOTSLSFSESIPIP 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23 PSVPLSRLFDHAMIQAHRLHQLAFDIYQEFEEAYIPKEKKHSLMENPQASFCFADSIPTP H2
                          Date: 31-May-1996 #sequence_revision 31-May-19" #text_change 16-3ul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sdre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A.Cross.Feferences: GB:1.16554; NID:q293112; PIDN:AAA18841.1; PID:g293213
C.Superfamily: prolactio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A.Molecule type: mRNA
A.Residues: 1-212 «RES>
A.Cross-references: GB:L16553: NID:9293110: PIDN:AAA18840.1: PID:q293111:
C.Superfamily: prolactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A:Cross references: GB:L16552; NID:9293108; PIDN:AAA18839.1; PID:9293109
C;Superfamily: prolactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lenath 217:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 84.3%; Score 396; DR 2; Length 212; 82.2%; Pred. No. 3.3e-35; ive 11; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84.5%; Score 397; DB 2; Lenath 217
83.3%; Pred. No. 2 70 %;
Eye B: Missarches 7; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  chorionic somatomammotropin-2 - rhesus macaque (fragment)
```

A:Status: preliminary; translated from CB/FMBL/DDBJ

A; Accession: 167408

83 SNLEETOOKSNLELLRISLLLJOSWLEPVO 112

chorionic somatomammotropin-1 - rhesus macaque

RESULT 6

63 SNREETQQKSNLELLRISLLI,IQSWLEPVQ 92

đ

ò d

ò

Best Local Similarity 82.2% Matches 74; Conservative

A;Status: preliminary; translated from GB/EMBL/DDBJ A;Moleculo type: mRNA A;Residues: 1-217 <RES>

```
C. Accession: E32435
R. Chen, E.Y.; Lido, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg Genomics 4, 479-497, 1989
A.S. Tille: The human growth hormone locus: nucleotide sequence, biology, and evolution A; Reference number: A32435; MUID:89307277; PMID:2744760
A; Status: preliminary
A; Molecule type: DNA
A; Residues: 1-217 <CHE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C;Accession: B49159
R;Southard, J.N.; Sanchez-Jimenez, F.; Campbell, G.T.; Talamantes, F.
Endocrinology 129, 2965-2917, 1991
A;Title: Sequence and expression of hamster projactin and growth hormone messenger HA;Reference number: A49159; MUID:92063850; PMID:1954881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R:HIrt, H.: Kimelman, J.: Birnbaum, M.J.: Chen, E.Y.: Seeburg, P.H.: Eberhardt, N.L. DNA 6, 59-70, 1987
ASTILLE: The human growth hormone yene locus: structure, evolution, and allelic vari
A:Reference number: A26449: MUID:87161235: PMID:3030680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4 TIPLSRLFDNAMLKAHRLHQLAFDTYQEFFEAYIPKEQKYSFLQNPQTSLSFSFSIPTPS 63
                          C;Species: Homo sapiens (man)
C;Date: 29.Dec-1989 *tsequence_revision 29.Dec-1989 *text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Species: Homo sapiens (man)
C;Date: 30-Jun-1988 *sequence_revision 30-Jun-1988 #text_change 28-Jul-1995
C;Accession: A26449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NiAlternate names: growth hormone
C:Species: Mesocricetus auratus (golden hamster)
C:Date: 19-Dec-1993 #sequence_revision 18-Nov-1994 #text_change 21.Jnl-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 TIPLSRIFONAMIRAHRIHQLAPDIYQEFEEAYIPKEQKYSFLONPQISLSFSESIPTPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Residues: 1-215 <HTR>
C;Superfamily: prolactin
F;1-26/Domain: Signal sequence #Status predicted <SIG>
F;27-215/Product: choriomammotropin, hCS-3 allele #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: GB;JC3071; NID:g183148; PiDN:AAA52553.1; PID:g183153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2; Length 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 217:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 38]; Dh 2;
Pred, No. 1.46 33;
8; Mismatches 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         76.5%; Score 359.5; DB 2
80.5%; 'red, No. 2.9e-31;
ive 8; Mismatches 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          choriomammotropin precursor (aliele ECS-3) · human
N, Alternate names: chorionic somatomammotropin 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NREETQQKSNLELLRISLLL.OSWLEPVO 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64 NREETQOKSNIELLRISLLLIQSWIEP 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                  A.Cross-references: GBB.119613; GMIM:11882)
A.Map position: 1792z 179z4
C.Superfamily: profactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 80.59
Matches 70; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 82.0
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   somatotropin · qolden hamster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A: Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A:Accession: A26449
                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Gene: GDB:CSH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Mates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                       C:Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 12
B49159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                               Acontents: annotation
Risherwood, L.M.: Handwerger, S.: McLauria, W.E.: Lanner, M.
Rature Now Biol. 25.6, 1972
A) Reference immuner: A5.64, 1972
A) Contents: annotation
A) Reference immuner: A5.64, 1979
B) Rich Chem. 254, 3782-3787, 1979
A) Rich Chem. 259, 13131-13138, 1984
                                                                                                                                                                                                                                                                                      A;Note: choriomammocropin apparently copurified with placental catechol-O-methyltransfer R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M. R. Andwerger, S.; McLaurin, W.D.; Lanner, M. A. Title: New Biol. 233, 59-61, 1971
A;Title: New Biol. 234, 59-61, 1971
A;Title: Amino-acid Sequence of human placental lactogen.
A;Reference number: A93401; MUID:72016313; PMID:5286363
                                                                        R;Nic A Bhaird. N.; Tipton, K.F.
Biochem. Soc. Trans. 19, 208, 1991
A;Title: Calcehol-O-metnyltransferase from human placenta: purification and some propert
A;Reference number: A61283; MUID:91244006; PMID:2037148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arītle: Analysis of a major human chorionic somatomammotropin gene. Evigence for two A:Reference number: 155229; MUID:85030426; PMID:6208192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Circywords: hormone; :lacenta

E:1-26/Domain: signal sequence *status experimental <SIG>

E:27-21/Product: choriomammorropin A *status experimental <MAT>

E:79-191/hisulfide bonds: *status experimental

E:208-215/Disulfide bonds: (in monomeric form) *status experimental

E:208/Disulfide bonds: interchain (to 215 in dimeric form) *status experimental

E:215/Disulfide bonds: interchain (to 238 in dimeric form) *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ं
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:CCOSS-references: GB:R02401; NID:9181120; P.EN.AAA52115.1; PID:q18112; R:Secburg, P.H.; Shine, J.; Martial, J.A.; Ull.ich, A.; Goodman, H. Trans. Assoc. Am. Physicians 90, 109-116, 1977
A;Title: Nucleotide sequence of a human gene c ding for a polypeptide hormone. A;Reference number: I59658; MUID:78160787; PM::ef11657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4 TIPLSRLFUNAMLRAHRLHQLAFUTYQEFERAYIPKEOKYSFLONPUTSLSFSESIPTYS 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A:MOLECULE type: mRNA
A:Residues: 150-217 <RE2>
A:Cross references: GB:M25118; N:D:q181124; PIPPIAAA35721.1; PID:q181125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 217:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81.1%; Score 381; '11; 82.0%; Pred. No. 1.4 +33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NREETQQKSNLELLRISLLLIQSWLFPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Cross references: GDB:119084; UMIM:150260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Status: translated from GB/EMB:/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  choriomammotropin B precursor - human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A,Map position: 17q22-17q24
A,Introns: 4/1; 57/3: 97/3: 152/4
C,Superfamily: prolactin
             A;Residues: 27-217 <NIA>
A;Experimental source: placenta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery March
Best Lorai Similarity 82.0
Matches 73: Conservative
                                                                                                                                                                                                                                    A; Molecule type: protein A; Residues: 27-46 <NIC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: DNA
A; Residues: 1 217 <RES>
                                                                                                                                                                                                       A; Accession: A61283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              V: Accession: 155229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Gene: GDB:CSH1
```

ï

RESULT 10

ô q ð a

ö

63

A;Molecule type: mRNA A;Residucs: 1-216 <500> A;Cross-references: GB:566299; NID:9239355; PIDN:AAB20368.1; PID:9239356 A;Notes: sequence extracted from NCBI backbone (NCBIN:66299, NCBIP:66300) C;Supertamily: prolactin

Superfamily: prolactin

A:Accession: B49159

1: :1: TELETE:THE FITHER HE HE HE HE HE HE PTGKEEAQQKSDMELLKFSLLLLQSWLGFVG 116 62 PSNREETOOKSNLELLRISLLLIQSWLEPVQ 92

q ò g RESULT 13

us-09-423-100-2.rpr

```
Cybercession: Agily Cadalla (condense) 13-0-1-98; rtext_change 23-Aug-1996
Cybercession: Agily 1-1981 ksequencerevision 13-0-1-98; rtext_change 23-Aug-1996
Cybercession: Agily 2-1-4981 ksequencerevision 13-0-1-98; rtext_change 23-Aug-1996
Cybercession: Agily 2-1-498 kg 435-44; Fortuna, Pr. Santome, D.A.: Dellacha, D.M.:
Int. J. Pept, Protein Pes & 435-44; 1976
Article: Primary structure of equine qrowth hormone.
Askedence number: Agily 2-2Ak Nulb:9706410; rMiD:966551
Askedence number: Agily 2-2Ak Nulb:9706410; rMiD:966551
Askedence type: protein
Askedence condense: 1-90 cada sequence of equine growth hormone.
FEBS Lett. 34, 353-35, 1973
Astille: The amino acid sequence of equine growth hormone.
Askedence number: Agil35; Aujp:74020362; PMID:4747849
Askedence number: Agil35; Aujp:74020362; PMID:4747849
Askedence type: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A.Title: Adrino acid sequences around the cystice residues in equine growth hormone. A.Title: Adrino acid sequences around the cystice residues in equine growth hormone. A.Title: A.Molecule type: A.Molecule type: protein
A.Molecule type: protein
A.Molecule type: protein
A.Molecule type: protein
A.Residues: 42-69,157-190 (x23)-
B.Oliver, L.: Hartree, A.S.
B.Oliver, L.: Hartree, A.S.
A.Title: Adrino acid sequences around the cystice residues in horse growth hormone. A.Reference number: A60240: MGID:69368390; PMID:4876100
A.Recession: A90240: MGID:69368390; PMID:4876100
A.Molecule type: protein
A.Molecule type: protein
A.Residues: 176-190 (cDI)
C.Superfamily: protactin
C.Superfamily: protactin
C.Superfamily: protactin
C.Superfamily: protactin
C.Superfamily: protactin
C.Suberfamily: protactin
C.Suberfamily: protactin
C.Suberfamily: protactin
                                                                                                                                 2 FPTIPLSKLFDNAMLRAHRLHQLAFDTYÖFFEEAYIPKEÖKYSFLONPOTSLSFSESIPT 61
                                                                                                                                                                           2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYOEPERAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                             Gaps
                                                                         :
T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ä
       Length 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64.4%; Score 302.5; 08.1; Length 190; 64.8%; Pred. No. 3.46-25;
Live 14; Mismatches 17; Indels 1
                                                                  17; Indels
       DB 1;
Ouery Match 64.8%; Score 304.5; DB 1
Best Local Similarity 64.8%; Pred. No. 2.4e-25;
Matches 59; Conservative 14; Mismatches 17
                                                                                                                                                                                                                                                                                                      62 PSNREETOQKSNLELLRISLLLIUSWLEPVO 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1: ::1 [1:1::111] [11]
60 PTGKDEAQQRSDMELLRFSLLLLIQSWLGFVQ 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62 PSNREETQOKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N'Alternate sames: growth hormone
Cispecies: Equis cabailus (domestic horse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   59; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity
Matches 59; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            somatotropin - horse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 15
                                                                                                                                     ें
                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                   ŝ
                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ટે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Somatotropin - Sei windle
N.Alernate names: atouth hormone
C.Species: Balaencptera borealis (Sei whale)
C.Species: Balaencptera borealis (Sei whale)
C.Date: O'-May-1993 #Sequence_revision 07.May 1993 #Lext_change 07-May-1999
C.Accession: PW0140
R.Yudaev, N.A.; Palkov, Y.A.; Bulatov, A.A.; Osipova, T.A.
Blokhimia 47, 1059-1069, 1982
A.Tille: Amino acid sequence of seiwhale somatotropin.
A.Relerner number: PW0140; MUID: 31000569; PMID:7115813
A.Accession: PW0140
A.Molecule type: protein
A.Residues: 1 196 <70D>
A.Note: article in Russian with English abstract.
C.Superfamily: prolactin
C.Superfamily: prolactin
C.Superfamily: prolactin
C.Superfamily: prolactin
C.Superfamily: prolactin
C.Superfamily: Selector; hormone
F.52-163.180-188/Disuifide bonds: #status predicted
                                                                                                                                                                                                                                                                                                                                                2 FPTIPLSRLFONAMLRAHRLHGLAFDTYQEFEEAYIPKEQKYSFLONPOTSLSFSESIP; 61
                                                                                                                                                                                                                                                                                                                                                                                      11 :111 11 11:111 - 11:11 1:11 | 111:11 | 111 : 1 | 11: | 11: | 1: | 27 FPAMPLSSLFANAVLRAQHEHQLAADTYKEFERAYIPEGQKYS-1QNAQTAFCFSETIPA 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 FPT1PLSKLEDNAMLRAHRLHOLAFDTYQEFEBAYIPKEQKYSFLQNPUFSLSFSFSIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ouery Match 66.1%: Score 310.5: DB 2: Length 216; Best Local Similarity 67.0%; Pred. No. 5.5e-26; Matches 61; Conservative 13; Mismatches 16: Indels 1: caps
```

-:

14; Mismatches 15; Indels

62 PSNREETOQKSNLELLRISLLLIQSWLEPVQ 92

somatotropia precursor - mouse

RESULT 14 STMS

65.4%; Score 307.5; DB 2; 67.0%; Pred. No. 9.8e-26;

Best Local Similarity 67.09 Matches 61; Conservative

qq ठ q

Query Match

Length 190;

```
Search completed: September 15, 2003, 12:04:19
Job time : 16.1685 secs
```

GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.

OM protein - protein search, using sw model

September 15, 2003, 11:54:00; Search time 8:57348 Seconds (without alignments) 504:633 Million ceil updates/sec Run on:

US-09-423-100-2

Perfect score:

35

1 MEPTIPLSRLFDNAMLRAHE.....NLELLERISLLLIOSWLEPVQ Sequence:

Capyort 0 1 BLOSUM62 Capor 10.0 . Scoring table:

12786 - seqs, 47.26705 res has Searched

Total number of mits satisfying chosen parameters:

127864

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100%

Listing first 45 summaries

SwissProt_41:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

1			æ			SUMMANIES	
SCOTE MALCH Length DE ID DESCRIP 460 97.9 217 1 SOMA, BUNAN 460 97.9 217 1 SOMA, BUNAN 481 92.1 217 1 SOMA, BUNAN 482 91.7 217 1 SOMA, BUNAN 483 91.7 217 1 SOMA, BUNAN 484 92.1 217 1 SOMA, BUNAN 884 82.17 1 SOMA, BUNAN 886 84.8 217 1 SOMA, BUNAN 881 81.1 217 1 SOMA, BUNAN 881 81.1 217 1 SOMA, BUNAN 881 81.1 217 1 SOMA, BUNAN 882 64.4 217 1 SOMA, BONAN 882 64.4 216 1 SOMA, BONAS 882 64.4 217 1 SOMA, BONAN 882 64.4 217 1 SOMA, BONAN 882 64.4 217 1 SOMA, BONAN 883 85 64.4 217 1 SOMA, BONAN 884 217 1 SOMA, BONAN 885 64.4 217 1 SOMA, BONAN 885 65.9 190 1 SOMA, BONAN 885 65.9 215 1 SOMA, BONAN 885 65.9 215 1 SOMA, BURBL 886 887.5 61.6 217 1 SOMA, BURBL 888 888 66.1 217 1 SOMA, BURBL 888 888 888 888 888 888 888 888 888 8	Result		Overy				
460 97.9 217 1 SOMA, BUMAN 460 97.9 217 1 SOMA, BUMAN 411 92.1 217 1 SOMA, BUMAN 412 92.1 217 1 SOMA, BUMAN 413 91.7 217 1 SOMA, SALBB 414 92.1 217 1 SOMA, SALBB 418 91.7 217 1 SOMA, BANTR 418 92.1 217 1 SOMA, BONTR 418 92.1 217 1 SOMA, BONTR 418 92.1 217 1 SOMA, BONTR 418 92.1 216 1 SOMA, BONTR 418 92.1 217 1 SOMA, BUBBU 418 92.1 217 1 SOMA, BUBBU 418 92.1 217 1 SOMA, BUBBU 418 93 93 92 16 1 SOMA, CRICK 418 93 93 93 93 93 93 93 93 93 93 93 93 93	<u>Q</u>	Score	Match	Length	D.R	G.:	Description
460 97.9 217 1 SCMA_MACHJ P33093 460 97.9 217 1 SCMA_PATTR P53756 413 91.7 217 1 SCMA_PATTR P53757 42 91.7 217 1 SCMA_PATTR P53757 42 91.7 217 1 SCMA_PATTR P53757 44 91.6 217 1 SCMA_PATTR P53757 44 217 1 SCMA_PATTR P01243 P01243 310 56 4 217 1 P11, MAN P01243 307.5 64.8 216 1 SCMA_RESA P058B0 P01349 302.5 64.8 216 1 SCMA_REST P058B0 P01241 302.5 64.4 216 1 SCMA_REST P046407 302.5 64.4 216 1 SCMA_REST P046407 302.5 64.4 216 1 SCMA_REST	-	460	9.79	217	-	SOMA, RUMAN	
460 97.5 217 3 SUMA PANTR P58756 431 92.1 217 1 SUMA SALBB P58144 432 91.5 217 1 SUMA SALBB P58144 430 91.5 217 1 SUMA PANTR P58757 422 89.8 217 1 SUMA_MINAN P01242 381 81.1 217 1 SUMA_MINAN P01343 380.5 84.3 217 1 SUMA_MINAN P01243 381.6 81.1 217 1 SUMA_MINAN P01243 381.6 86.1 216 1 SUMA_MINAN P01243 382.5 65.4 1 90 1 SUMA_MINAN P01243 382.5 64.8 216 1 SUMA_MINAN P01245 382.5 64.4 217 1 SUMA_MINAN	7	460	97.9	217	_	SOMA_MACMU	
413 92.1 217 1 SGMA SAIBB P58 44 432 91.7 217 1 SGMA_LALJA G99mb3 422 89.8 217 1 SGMZ_HUMAN P51342 386 84.3 217 1 SGMZ_HUMAN P51342 3810.5 66.1 216 1 SGMZ_HUMAN P51342 307.5 66.1 216 1 SGMZ_HUMAN P61243 302.5 64.8 216 1 SGMZ_HUSE P61340 302.5 64.4 216 1 SGMZ_HART P61680 302.5 64.4 216 1 SGMZ_HART P61640 302.5 64.4 217 1 SGMZ_HART P61640 301.5 <td>~</td> <td>460</td> <td>97.9</td> <td>217</td> <td></td> <td>SUMA PANTR</td> <td></td>	~	460	97.9	217		SUMA PANTR	
432 91.9 217 i SCMA, CALJA O'Gqmb3 424 420 17 i SCM2, MACMU P58757 426 84.3 217 i SCM2, MACMU P58757 381 81.1 217 i PLL, MANAN P01243 310.5 65.4 190 1 SCMA, MSSA P33092 307.5 65.4 190 1 SCMA, MSSB P33092 307.5 64.8 216 1 SCMA, MSSB P01243 302.5 64.4 216 1 SCMA, MSSB P01244 302.5 64.4 216 1 SCMA, MSSB P01244 302.5 64.4 216 1 SCMA, MSSB P01244 302.5 64.4 217 1 SCMA, MSSB P01246 301.5 64.4 217 1 SCMA, MSSB P01246 301.5 64.4 217 1 SCMA, MSSB P01246 301.5 64.1 216 1 SCMA, MSSB P01246 301.5 64.1 216 1 SCMA, MSSB	4	4 4 4	92.1	217	-	SOMA SAIBB	
4.10 91.5 217 3 CMM2 PANTR P58/557 3.42 3.69.8 217 1 SOM2 PANTR P01242 3.81 81.1 217 1 SOM2 HARM C01343 3.10.5 66.1 216 1 SOMA MESAJ P01243 3.02.5 65.4 190 1 SOMA MESAJ P01243 3.02.5 64.4 216 1 SOMA MESA P01248 3.02.5 64.4 216 1 SOMA MESE P01248 3.02.5 64.4 216 1 SOMA MAT P01248 3.02.5 64.4 217 1 SOMA LUXAF P01248 3.01.5 64.4 217 1 SOMA LUXAF P01348 3.01.5 64.1 19.0 1 SOMA LUXAF P01348 3.01.5 64.1 216 1 SOMA LUXAF P01348 3.01.5 64.1 216 1 SOMA LUXAF P01348 3.01.5 64.1 216 1 SOMA LUXAF P01348 2.91.5 62.0 1 SOMA LUXAF	S.	4 3 2	41.3		. ¬	SOMA_CALJA	
4.2 6.9.8 2.17 1 SOM2 HIMAN P3142 36 4.3 3.17 1 SOM2 HIMAN P01342 310 5 6.1 2.17 1 SOM2 MSS3 P3788 310 5 6.4 1.50 1 SOMA MSS3 P3788 P3788 302.5 6.4 2.16 1 SOMA MSSE P01245 P01245 302.5 6.4 2.16 1 SOMA MSE P01245 P01245 302.5 6.4 2.16 1 SOMA MSE P01245 P01245 302.5 6.4 2.17 1 SOMA MSE P01246 P01246 301.5 6.4 1 JyO 1 SOMA MSE P01246 P01246 301.5 6.4 1 JyO 1 SOMA MSE P01246 P01246 <td>9</td> <td>4 30</td> <td>91.5</td> <td></td> <td>_</td> <td>SOM2_PANTH</td> <td></td>	9	4 30	91.5		_	SOM2_PANTH	
36 64.3 217 1 SCMAZ_MACKWJ OU7370 381 81.1 217 1 PLL_MUNAN PO1243 310.5 66.4 1 216 1 SOMA_MESAJ P53092 307.5 65.4 190 1 SOMA_MESAJ P53092 P53092 302.5 64.4 216 1 SOMA_MASE P06880 P6680 302.5 64.4 216 1 SOMA_MASE P06880 P06880 302.5 64.4 217 1 SOMA_MASE P06880 P06880 302.5 64.4 217 1 SOMA_MASE P06880 P06880 301.5 64.1 150 1 SOMA_MASE P06982 P06982 301.5 64.1 216 1 SOMA_MASE P06982 P06982 301.5 64.1 216 1 SOMA_MASE P06982 P01144 295.5 62.9 190 1 SOMA_MASE	7	477	86.8		-	SOM2_HUMAN	
38. 81.1 217 1 PLI_BUNAN P01243 310.5 65.4 196 1 SONA_MESAJ P37826 307.5 65.4 196 1 SONA_MESAJ P01243 302.5 64.4 216 1 SONA_MESE P06880 302.5 64.4 216 1 SONA_MAT P01245 302.5 64.4 216 1 SONA_LOXE P01246 302.5 64.4 217 1 SONA_LOXE P04401 301.5 64.4 217 1 SONA_LOXE P04084 301.5 64.1 116 1 SONA_LOXE P04084 301.5 64.1 216 1 SONA_LOXE P01348 301.5 64.1 216 1 SONA_LOXE P01348 301.5 64.1 216 1 SONA_LOXE P01348 299.5 63.3 190 1 SONA_LOXE P01348 291.5 62.0 190 1 SONA_LOXE P01348 291.5 62.0 215 1 SONA_LOXE <	æ	366	84.3		~	SOMZ_MACHU	•
310.5 66.1 216 1 SONA, MESAJ P37886 307.5 65.4 190 1 SONA, MCSE P33092 302.5 64.4 216 1 SONA, HOKSE P01245 302.5 64.4 216 1 SONA, RAT P01245 302.5 64.4 217 1 SONA, RAT P01246 302.5 64.4 217 1 SONA, RAT P01246 302.5 64.4 217 1 SONA, LOXAF P01244 301.5 64.1 216 1 SONA, LOXAF P01244 301.5 64.1 216 1 SONA, LOXAF P01246 301.5 64.1 216 1 SONA, LOXAF P01246 301.5 64.1 216 1 SONA, LOXAF P01246 401.5 64.1 216 1 SONA, LOXAF P01246 294.5 63.7 1 SONA, LOXAF P01246 P01246 <tr< td=""><td>6</td><td>381</td><td>81.1</td><td></td><td>-</td><td>PLI. HUMAN</td><td></td></tr<>	6	381	81.1		-	PLI. HUMAN	
307.5 65.4 190 1 SUNA_BALHC P33992 304.5 64.8 216 1 SONA_HOKE P06880 302.5 64.4 216 1 SONA_HOKE P06880 302.5 64.4 216 1 SONA_LOXAF P01244 302.5 64.4 217 1 SONA_LOXAF P01244 301.5 64.1 216 1 SONA_LOXAF P094k2 301.5 64.1 216 1 SONA_LOXAF P094k2 301.5 64.1 216 1 SONA_LOXAF P040k2 301.5 64.1 216 1 SONA_LOXAF P040k1 301.5 64.1 216 1 SONA_LOXAF P040k1 294.5 64.1 216 1 SONA_LOXAF P040k1 295.5 62.9 190 1 SONA_LOXAF P0124B 291.5 62.9 190 1 SONA_LOXAF P0124B <	10		1.99	216		SOMA_MESAU	_
3.04 - 5 64 - 8 216 1 SOMA, MCUSE P06880 3.02 - 5 64 - 4 216 1 SOMA, MAT P01245 3.02 - 5 64 - 4 216 1 SOMA, MAT P01246 3.02 - 5 64 - 4 217 1 SOMA, MCPY P04621 3.01 - 5 64 - 1 15 - 0 SOMA, LUXAF P03481 P03481 3.01 - 5 64 - 1 15 - 0 SOMA, LUXAF P03482 P03482 3.01 - 5 64 - 1 216 SOMA, LUXAF P03482 P03482 3.01 - 5 64 - 1 216 SOMA, LAMPA P03482 P03482 3.01 - 5 64 - 1 216 SOMA, LAMPA P03484 P03484 3.01 - 5 64 - 1 216 SOMA, LAMPA P03484 P03484 2.95 - 5 62 - 9 190 1 SOMA, LAMPA P03484 2.97 - 5 62 - 9 190 1 SOMA, LAMPA P03484 2.98 - 6 - 6 62 - 0	11	307.5	65.4	190	-	SOMA_BALRO	
302.5 64.4 216 1 SONA, HUKSE P01245 302.5 64.4 216 1 SONA, RAT P1846407 302.5 64.4 217 1 SONA, RAT P71244 302.5 64.4 217 1 SONA, RAT P71244 301.5 64.1 217 1 SONA, LOXAF P203421 301.5 64.1 216 1 SONA, LOXAF P203421 301.5 64.1 216 1 SONA, LOXAF P20342 301.5 64.1 216 1 SONA, RELA P40404 301.5 64.1 216 1 SONA, RESY P40404 301.5 64.1 216 1 SONA, RESY P1076 302.5 63.3 190 1 SONA, LAMPA P7179 295.5 62.9 190 1 SONA, LAMPA P7179 297.5 62.0 190 1 SONA, LAMPA P7179 298.5 61.6 217 1 SONA, ROULU OGENEY 289.5 61.6 217 1 SONA, BULL P7179 289.5 61.6 217 1 SONA, BULL P7179 289.5 61.6 217 1 SONA, SHEEP P01246 289.5 61.6 217 1 SONA, SHEEP P01348 275.5 59.3 216 1 SONA, BULLA P7179 275.5 58.4 217 1 SONA, BULLA P7179 275.5 58.4 217 1 SONA, BULLA P7179 275.5 58.4 217 1 SONA, SHEEP P01348 275.5 58.4 217 1 SONA, STREA P018998	12	304.5	64.8	216	-	SOMA_MOUSE	_
30.2.5 64.4 216 1 SCHAA, RABIT P464C7 30.2.5 64.4 216 1 SOMA, ATT P51244 30.2.5 64.4 217 1 SOMA, NYCPY Q9qmb2 30.1.5 64.1 216 1 SOMA, DARE P753942 30.1.5 64.1 216 1 SOMA, PELCA P46404 30.1.5 64.1 216 1 SOMA, PELCA P46404 30.1.5 64.1 216 1 SOMA, PELCA P46404 497.5 63.3 190 1 SOMA, LAMPA P37188 295.5 62.9 190 1 SOMA, LAMPA P37885 297.5 62.9 190 1 SOMA, LAMPA P37885 291.5 62.0 215 1 SOMA, LAMPA P37885 291.5 62.0 215 1 SOMA, LAMPA P66437 291.5 62.0 215 1 SOMA, LAMPA P66437 <td>13</td> <td>302.5</td> <td></td> <td>216</td> <td>_</td> <td>SOMA_HORSE</td> <td>_</td>	13	302.5		216	_	SOMA_HORSE	_
302.5 64.4 216 J SOMA, RAT P01244 302.5 64.4 217 J SOMA, MYCPY O94ka1 301.5 64.4 217 J SOMA, LUXAF Q94ka1 301.5 64.1 156 J SOMA, LUXAF P34592 301.5 64.1 216 J SOMA, LUXAF P34592 301.5 64.1 216 J SOMA, LUXAF P34592 301.5 64.1 216 J SOMA, LAMPA P34543 301.5 64.1 216 J SOMA, LAMPA P34746 295.5 62.9 190 J SOMA, LAMPA P3788 295.5 62.9 190 J SOMA, LAMPA P3788 296.5 62.0 215 J SOMA, LAMPA P01746 291.5 62.0 215 J SOMA, LAMPA P01246 291.5 62.0 215 J SOMA, RUBBU O62554 289.5 61.6 217 J SOMA, RUBB P01246 278.5 58.6 216 J	14	302.5	64.4	716	-	SOMA_RABIT	-
302.5 64.4 217 i SOMA, GALSE 094ka1 302.5 64.4 217 i SOMA, GALSE 094ka1 301.5 64.4 217 i SOMA, LOXAE P3 303 42 301.5 64.1 216 i SOMA, TANFA P3 3711 301.5 64.1 216 i SOMA, FELCA P4 6404 401.5 64.1 216 i SOMA, P1G P0 3724 294.5 63.7 216 i SOMA, LAMPA P3 7736 295.5 62.9 190 i SOMA, LAMPA P3 7745 291.5 62.0 215 i SOMA, WILVU O9476 291.5 62.0 215 i SOMA, LAMPA P3 776 291.5 62.0 215 i SOMA, WILVU O62754 291.5 62.0 215 i SOMA, BOVIN O62754 291.5 61.6 217 i SOMA, SHEEP P01245 292.5 61.6 217 i SOMA, BOVIN O18938 293.5 61.6 217	15	302.5	64.4	216	~	SOMA_KAT	
302.5 64.4 217 1 SOMA NYCPY 999mb2 301.5 64.1 196 1 SOMA LOXAF 20342 301.5 64.1 216 1 SOMA FELCA P46404 401.5 64.1 216 1 SOMA FELCA P46404 294.5 64.1 216 1 SOMA LAMPA P46404 297.5 63.3 190 1 SOMA LAMPA P37885 297.5 63.3 190 1 SOMA LAMPA P37885 297.5 62.9 190 1 SOMA LAMPA P37885 291.5 62.0 215 1 SOMA LAMPA P37885 291.5 62.0 215 1 SOMA LAMPA P01746 291.5 62.0 215 1 SOMA BOUN O62754 299.5 61.6 217 1 SOMA SHEEP P01246 289.5 61.6 217 1 SOMA BUBU O18938 278.5 58.4 216 1 SOMA CHICK P01247 275.5 58.4 217 1 SOMA CHICK </td <td>16</td> <td>302.5</td> <td>64.4</td> <td>217</td> <td>,</td> <td>SOMA_GALSE</td> <td></td>	16	302.5	64.4	217	,	SOMA_GALSE	
301.5 64.1 190 1 50MA_LUXAF P201992 301.5 64.1 216 1 50MA_CANFA P34.1 P34.1 401.5 64.1 216 1 SOMA_PIG P01348 299.5 64.1 216 1 SOMA_LAMP P01348 299.5 63.3 190 1 SOMA_LAMP P01348 295.5 62.9 190 1 SOMA_LAMP P10766 291.5 62.0 215 1 SOMA_LAMP P10766 291.5 62.0 215 1 SOMA_MONDO O99160 291.5 62.0 215 1 SOMA_MONDO O99160 291.5 62.0 215 1 SOMA_MONDO O62754 289.5 61.6 217 1 SOMA_ROBEL P01246 289.5 61.6 217 1 SOMA_ROBEL P01346 278.5 50.1 217 1 SOMA_ROBEL P01398	17	302.5	64.4	217	_	SOMA_NYCPY	
10.15 64.1 216 1 SOMA_TANEA PRITTING 10.15 64.1 216 1 SOMA_TANEA PROPERTY 10.15 64.1 216 1 SOMA_TEG PROPERTY 10.15 64.1 216 1 SOMA_TEG PROPERTY 10.15 64.1 216 1 SOMA_TEG PROPERTY 10.15 64.1 216 1 SOMA_MESVI PROPERTY 10.15 62.9 190 1 SOMA_WILVIN PROPERTY 10.15 62.0 215 1 SOMA_WILVIN OGYTOP PROPERTY 10.15 62.0 215 1 SOMA_BOVIN PROPERTY 10.15 61.6 217 1 SOMA_BOVIN PROPERTY 10.15 61.6 217 1 SOMA_BUBBU PROPERTY 10.15 61.6 216 1 SOMA_BUBBU PROPERTY 10.15 61.6 216 1 SOMA_STREA PROPERTY 10.15 61.6 216 1 SOMA_STREA PROPERTY 10.15 61.6 217 1 SOMA_STREA PROPERTY 10.15 61.6 21.6 1 SOMA_STREA PROPERTY 10.15 61.6 21.	81	301.5	64.1	150	~	SOMA_LOXAF	
101 5 64.1 216 1 SOMA_FELCA P06404 101 5 64.1 216 1 SOMA_FEG P01248 294.5 63.7 216 1 SOMA_LAMPA P17248 297.5 63.3 190 1 SOMA_LAMPA P37885 297.5 62.9 190 1 SOMA_LAMPA P170766 291.5 62.0 215 1 SOMA_LAMPA P10766 291.5 62.0 215 1 SOMA_LAMPA P10766 291.5 62.0 215 1 SOMA_LAMPA P010766 291.5 62.0 215 1 SOMA_LAMPA P010766 291.5 62.0 215 1 SOMA_LAMPA P01246 289.5 61.6 217 1 SOMA_LAMPA P01246 289.5 61.6 217 1 SOMA_LAMPA P01246 289.5 61.6 217 1 SOMA_LAMPA P01247 280.5 60.1 217 1 SOMA_LAMPA P01248 275.5 58.6 216 1 SOMA_LAM	<u>5</u>	301.5	54.1	216	~	SOMA_CANFA	
101.5 64.1 216 1 SONA, PIG P013.48 299.5 63.3 15 1 SONA_MUSVI P19795 295.5 63.9 190 1 SONA_LAMPA P19795 295.5 62.9 190 1 SONA_NULVU P10766 291.5 62.0 215 1 SONA_MONDO O99160 291.5 62.0 215 1 SONA_MONDO O99160 291.6 217 1 SONA_BOVIN O62754 289.5 61.6 217 1 SONA_SEREL P01246 289.5 61.6 217 1 SONA_SEREL P01246 289.5 61.6 217 1 SONA_BUBB P01246 278.5 50.1 217 1 SONA_BUBC P01247 275.5 58.6 216 1 SONA_RELGA P01247 274.5 58.4 217 1 SONA_RELCK P06993 274.5 <	20	301.5	64.1	216	-	SOMA_FELCA	
294 5 63.7 216 1 SONA, MUSVI P19735 297.5 63.3 190 1 SONA, LAMPA P37885 295.5 62.9 190 1 SONA, WULVU P10766 291.5 62.0 215 1 SONA, MONDO O99160 291.5 62.0 215 1 SONA, TRIVU P01246 289.5 61.6 217 1 SONA, CEREL P56437 289.5 61.6 217 1 SONA, SHEEP P01246 289.5 61.6 217 1 SONA, SHEEP P01247 282.5 60.1 217 1 SONA, BUBBU P01247 278.5 58.6 216 1 SONA, BUBBU P22077 275.5 58.6 216 1 SONA, CHICK P08998 274.5 58.4 217 1 SONA, SURVA P099433	21	501.5	64.1	216	_	SOMA_PIG	
297.5 63.3 190 1 SOMA_LAMPA P37885 295.5 62.9 190 1 SOMA_LANDO P0766 291.5 62.0 215 1 SOMA_MONDO O949160 291.5 62.0 215 1 SOMA_RONDO O62754 289.5 61.6 217 1 SOMA_RONIN P01246 289.5 61.6 217 1 SOMA_CEREL P56437 289.5 61.6 217 1 SOMA_CEREL P01246 282.5 60.1 217 1 SOMA_BUBU O18938 278.5 58.6 216 1 SOMA_RUBUG P02247 275.5 58.6 216 1 SOMA_RUBUG P02077 275.5 58.4 216 1 SOMA_CHICK P08998 274.5 58.4 217 1 SOMA_STRCA O9pwq3	22	299.5	63.7	216		SOMA_MUSVI	
295.5 62.9 190 1 SOMA, VULVU P10766 291.5 62.0 215 1 SOMA, VULVU Q9160 291.5 62.0 215 1 SOMA, END Q9160 291.5 61.6 217 1 SOMA, BOVIN P01246 289.5 61.6 217 1 SOMA, BOVIN P01246 289.5 61.6 217 1 SOMA, SHEEP P01247 282.5 61.6 217 1 SOMA, SHEEP P01247 275.5 61.6 217 1 SOMA, BUBBU P10247 275.5 58.6 216 1 SOMA, BUBBU P02077 275.5 58.4 217 1 SOMA, STRCA Q9pwg3	* 7	2.762	63.3	190	~	SOMA_LAMPA	
291 5 62.0 215 1 SOMA_MONDO 099160 291.5 62.0 215 1 SOMA_TRIVU 062754 289.5 61.6 217 1 SOMA_CEREL P56437 289.5 61.6 217 1 SOMA_CEREL P56437 289.5 61.6 217 1 SOMA_SHEEP P01247 282.5 60.1 217 1 SOMA_BUBU P018938 275.5 58.4 216 1 SOMA_MELGA P02077 275.5 58.4 217 1 SOMA_CHICK P089998 274.5 58.4 217 1 SOMA_STRCA O9pwg3	24	295.5	65.6	190	~	SOMA_VULVU	
291.5 62.0 215 1 SOMA_TRIVU 062754 289.5 61.6 217 1 SOMA_CEREL P56437 289.5 61.6 217 1 SOMA_SHEEP P01246 289.5 61.6 217 1 SOMA_SHEEP P01247 282.5 60.1 217 1 SOMA_BUBU 018938 276.5 59.3 216 1 SOMA_BUBU P2277 275.5 58.6 216 1 SOMA_CHICK P08998 274.5 58.4 217 1 SOMA_STRCA 09pwg3	25	291.5	62.0	215	_	SOMA_MONDO	
289.5 61.6 217 1 SOMA_BOVIN P01246 289.5 61.6 217 1 SOMA_EREL P56437 289.5 61.6 217 1 SOMA_EREL P01247 282.5 61.6 217 1 SOMA_BUBU 018938 278.5 59.3 216 1 SOMA_BUBU P02077 275.5 58.6 216 1 SOMA_BUBU P02077 275.5 58.4 217 1 SOMA_ETRCA P08993	26	291.5	62.0		-	SOMA_TRIVU	
289.5 61.6 217 1 SOMA_CEREL, P56437 289.5 61.6 217 1 SOMA_SHEEP P01247 282.5 61.6 217 1 SOMA_SHEEP 018938 278.5 59.3 216 1 SOMA_MELGA P22077 275.5 58.6 216 1 SOMA_CHICK P08998 274.5 58.4 217 1 SOMA_STRCA 09pwg3	23	289.5	61.6		~	SOMA_BOVIN	
289.5 61.6 217 1 SOMA_SHEEP P01247 - 282.5 60.1 217 1 SOMA_BUBBU 0.018938 278.5 59.3 216 1 SOMA_MELGA P02077 275.5 58.6 216 1 SOMA_CHICK P08998 274.5 58.4 217 1 SOMA_STRCA 0.9pwg3	28	289.5	61.6		٦	SOMA_CEREI.	
282.5 60.1 217 1 SOMA, BUBBU 018938 278.5 59.3 216 1 SOMA, BLCA P20277 275.5 58.6 216 1 SOMA, CHICK P08998 274.5 58.4 217 1 SOMA, STRCA 09pwg3	ტ (ბ	289.5	61.6	217	-	SOMA_SHEEP	
.5 59.3 216 1 SOMA_MELGA P22077 1 .5 58.6 216 1 SOMA_CHICK P08998 .5 58.4 217 1 SOMA_STRCA Q9pwg3 .	30	282.5	60.1	217	-	SOMA_BUBBU	
58.6 216 1 SOMA_CHICK P08998 58.4 217 1 SOMA_STRCA 09pwg3.	31	278.5	59.3		7	SOMA_MELGA	_
.5 58.4 217 1 SOMA_STRCA 09pwg3	32	275.5	58.6		-	SOMA_CHICK	
	33	274.5	58.4		~	SOMA_STRCA	~

5 crocodylus	5 chelonia my	8 ands platyr	3 acipenser q	4 acipenser q	5 lepisosteus	5 xenopus lac	3 rana catesb	9 bufo marinu	6 prionace ql	6 xenopus lae	9 protopterus
P5575	P3400	P1122	P26773	P2677	P7988	P1285	P1081	07384	P3400	P1285	073848
SOMA_CRONG	SOMA_CHEMY	SOMA_ANAPI.	SOM1_ACIGU	SOM2_ACIGU	SOMA_LEPOS	SOMA_XENLA	SOMA_RANCA	SOMA_BUFMA	SOMA_PRIGI,	SOMB_XENLA	SOMA_PROAN
_	~	-		_	-	Н	~	~	,	-1	٦
051	191	216	190	190	211	214	215	213	183	708	706
58.0	57.1	55.5	54.8	54.8	52.7	51.0	50.7	48.2	48.0	46.7	46.5
72.5	268.5	261	257.5	257.5	247.5	239.5	238.5	226.5	225.5	219.5	218.5
~											

ALIGNMENTS

```
POIZAT: 014405; 016640; USHBAT: USHBAT: ValbaTS; ValbaTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIINE-89307277; PubMed-2744760; Chen E.Y., Liao Y.C., Smith D.H., Barrera-Suidana H.A., Gelinas R.E., Seeburg P.H.; The human growth hormone locus: nucleotide sequence, biology, and poolution R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. (ISOFORM 1), AND POSSIBLE ALTERNATIVE SPLICING. BEDLINE-SEQUENCY SPORTED F.W., MOOFE D.D., GOODMAIN H.M.; "Human growth hormone DNA sequence and mRNA structure: possible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota, Metazoa, Chordata, Craniata, Verrebrata, Euteleostomi, Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Romo.
NCBL_TaxID=9606,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "The human growth hormone gene family: nucleotide sequences show recent divergence and predict a new polypoptide hormone."; DNA 1:239-249(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Martial J.A., Hallewell R.A., Baxter J.D., Goodman H.M.:
"Human growth Bormone: complementary BNA closing and expression
bacterial";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE-Pituitary;
Gu J., Huang O.-H., Li N., Xu S.-H., Han Z. G., Fu G., Chen Z.;
An novel gene expressed in human pituitary.";
Submitted (SEP-1999) to the EMBL/GenBank/DDRJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Roskam W., Rouqeon F.: "Molecular cloning and nucleotide sequence of the human growth hormone structural gene.": Nucleic Acids Res. 7:305-320(1979).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alternative splicing.";
Nucleic Acids Res. 9:3719:3730(1981).
                                                                                                            FRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  [2]
SEQUENCE FROM N.A. (180FORM 1).
MEDLINE-79201293; PubMed-37496;
Hallowell R.A., Bas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. MEDLINE-83182010; PubMed=7169009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. (ISCFCKM 1).
MEDLINE-80034477; Pubmed-386281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. (ISOFORM 3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Science 205:662-607(1979).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genomics 4:479-497(1989).
                                                                                                            STANDARIO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    [5]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     [4]
SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Seeburg P.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       evolution.
RESULT 1
SOMA_HUMAN
                                                                                                                                                 NEW RESERVED TO COCCONDENS TO SERVED THE SERVED TO COCCONDENS TO SERVED THE S
```

```
Hu R.-M., Han Z.-G., Song H.-D., Peng Y.-)., Huang Q.-H., Ren S. X., Gu Y.-J., Huang C.-H., Li Y.-B., Jiang C. L., Fu G., Zhang Q.-H., Ku Gu B.-W., Dai M., Mao Y.-F., Gao G.-F., Kung R., Ye M., Zhou J., Xu S.-H., Gu J., Shi J.-X., Jin W.-R., Zhang C.-K., Wu T.-M., Huang G.-Y., Wu T.-M., Chen Z., Chen M.-D., Chen J.-L., Gree expression profilling in the human hypothalamus-pituitary-adrenal axis and Iull-length cDNA cloning."
                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-86137393; PubMed-3912261;
Gray G.L., Raldridge J.S., McKeown K.S., Heyneker H.L., Chang C.N.;
"Periplasmic production of correctly processed himan atomit hormone in
Escherichia coli, natural and bacterial scand. Sequence are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Projectin and carcinogenesis, Proc. fourth tenovus workshop projectin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDILINE-71151966; PubMed-5279528;
Niall H.D., Hogan M.L., Sauer R., Rosenbium L.Y., Greenwood P.C.;
"Sequences or pitifiary and placental lactogenic and growth hyrmopes:
evolution from a primordial pretide by gene reduplication.";
Proc. Natl. Arad. Sei. U.S.A. 58:866-869(1971).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Li C.H., Dixon J.S., Liu W.-K.; "Human pituitary growth bormone, XIX. The primary structure of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Human pituitary growth hormone, 32. The primary structure of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bowley T.A., Dixon J.S., Li C.H.; Sequence comparison of human pituitary growth hormone, human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          chorionic somatomammotropin, and ovine pituitary growth and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Revised primary structure for human growth hormone.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "The chemistry of the human lactogenic hormones."; (In) Griffiths K. (eds.);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pp.13-20, Alpha Omega Alpha Press, Cardif: (1972).
                                                                                                                                                                                                                                                                                                                                                            Proc. Natl. Acad. Sci. U.S.A. 97:9543-9548(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         [61] J. Pept. Protein Res. 4:281-287(1972)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arch. Biochem. Biophys. 146:233:236(1971)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Arch. Biochem. Biophys. 133:70-91(1969)
                                                    TISSUE-Pituitary;
MEDL:NE-20402571; Pubmed-10931946;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDL::NE-69289202; PubMed: 5810834;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 27-217, AND REVISIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-73692028; PubMed-4675454;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PubMed-5144027;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDI.INE-71139765; PubMed-5279046;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nature New Biol. 230:90-91(1971)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REVISIONS TO 119 120 AND 157 159
                           FROM N.A. (ISOFORM 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 27-61 AND 102-124
                                                                                                                                                                                                                                                                                                                                                                                                                               SEUCENCE OF 1-26 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gene 49:247 254([985]).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIINE-72143935; Pul
Li C.H., Dixon J.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lactogenic hormones.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hormone: revision."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 27-217.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N14:1 H.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nial: H.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REVISTON.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REVISION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        horacine.
REAL AD A COLOR OF THE COLOR OF
```

Chapmen G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J., Turner C., Cary P.D., Crane-Robinson C.; "The 20,000 molecular weight variant of human growth hormone.

MEDI.INE-81117361; PubMed-7462247;

SEQUENCE OF 27-79 (ISOFORM 2).

Preparation and some physical and chemical properties."; J. Biol. Chem. 256:2395-2401(1981).

SEQUENCE OF 46-80 (ISOFORM 2). MEDLINE-80130196; PubMed-7356479;

```
MEDLINE-95075462: PubMed-7984244:
Somers W. Ultsch M., de Yos A.M., Kossiakoll A.A.:
"The X-ray structure of a growth hormone prolactin receptor complex.";
Nature 372:478-481(1944).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FUNCTION: Plays an important role in growth control. Its major role in stimulate the liver and other itssues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *Characterization of single-nucleotide polymorphisms in coding regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-99318693: Pribmed 1639;264;
Cargill M. Altshuler D. Ireland J., Skiar F., Ardlie K., Patil N.,
Shaw N., Lanc C.E., Lim E.P., Kaiyaharaman N., Nemesh J., Ziaugra L.,
Friedland L., Rolfe A., Warrington J., Lipshutz R., Daley G.Q.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Shaw N., Lane C.R., Lim E.P., Kalyanaraman N., Nemesh J., Ziaugra L., Friedland L., Rolfe A., Warrington J., Lipshutz R., Daley G.Q.,
                                                                                                                                                                                          MEDLINE-82052997; PubMed-7028740;
Lewis U.J., Singh R.N., Bonewald E.F., Seavey B.K.;
"Altered proteclytic cleavage of Human growth hormone as a result of
heamidation.":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cargill M., Altshuler D., Ireland J., Sklar I., Ardlie K., Patil N.,
Lewis U.J., Bonewald L.F., Lewis L.J.; The 20,000 dalton variant of human growth hormone: location of the amino acid deletions."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Crystal structure of an antagonist mutant of human growth hormone, 31208, in complex with its receptor at 2.9 A resolution.":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
MEDLINE 97113023; PubMed+8943276;
Sandstroem M., Landqvist T., Roedin J., Giebel L.F., Millidan L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   de Vos A.M., Clisch M., Kossiakori A.A.; "Human growth formone and extrace.lular domain of its receptor: crystal structure of the complex."; Science 255:306-312(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-R819007 - Putwou-3447173;
Cohen F.E., Kuntz 1.1.;
"Prediction of the three-dimensional structure of human arowth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Growin hormone heter vacaeity in human pituitary and plasma.";
Horm. Res. 51 Suppl. 1:2-6(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chantalat L., Chirgadze N.Y., Jones N., Korber F., Navaza J. Pavlovsk A.G., Wlodawer A.;
"The crystal structure of wild-type growth-hormone at 2.5-A
                                                                                                  Biochem. Biophys. Res. Commun. 92:511-516(1980).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0R. in complex with its receptor a
Biol. Chem. 271:32197-32203(1996).
                                                                                                                                                                                                                                                                                                                                 Biol. Chem. 256:11645-11650(1981).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein Pept. Lett. 2:333-340(1995).
                                                                                                                                                                  DEAMIDATION OF GLN-163 AND ASN-178.
                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-99421812; PubMed-10393484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE:92196577; PubMed-1549776;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nat. Genet. 22:231-238(1999),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23:373-373(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hormone.";
Proteins 2:162-166(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3D-STRUCTURE MCCELING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Horm, Res. 51 Suppl.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANT CYS-105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of human genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Norstedt G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lander E.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lander E.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Baumann G.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nat. Genet.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          resolution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ERRATUM.
                                                                                                                                                                                                                                                                                                                                                                                                       REVIEW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            G120R.
   CCCCCC AND REPRESENTED AND REPRESENTED AND REPRESENTED AND REPRESENTED AND REPRESENTED AND REPRESENTED AND REPRESENTANT OF THE PARTICULAR AND REPRESENTED AND
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way codified and this statement is not removed. Usage by and for commercial collides requires a license agreement (See http://www.isb-sib.ch/announce/
                                       0
                                                                 2 FPTIPLSRLFUNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                      86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-86129460; PubMed-3080959;
Li C.H., Chung D., Lahm H.W., Stein S.;
The primary structure of monkey pituitary growth hormone.";
Arch. Biochem. Biophys. 245.287-291(1986).
I FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates among acid uptake and protein synthesis in muscle and other
                                                                                     01.0CT-1994 (Rel. 40, Last sequence spilate)
28-FEB-2003 (Rel. 41, Last annotation update)
Somatotropin precursor (Growth hormone) (CT) (GH-N) (Pitnitary growth
                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Golos T.G., Durning M., Fisher J.M., Fowler P.D.,
"Cloning of four growth hormone/chorionic somatomamotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.",
Endocrinology 133:1744-1752(1993)
                                                                                                                                                                                                                                                                                                                                                                                                           rtebrata; Euteleostomi;
Percopithecidae;
                                   .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
 Score 460; DR 1; Length 217; Pred. No. 8.8e :1;
                                   Indels
                                   ∺
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY.
SIMILARITY.
-> Q (IN REF. 2).
                                                                                                                                                     PSNREFTQQKSNLELLRISLLLIQSWLEPVQ 117
                                                                                                                                   62 PSNREETQOKSNLFLLRISLLLIQSWLEPVQ 92
                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOMATOTROPIN.
BY SIMILARITY
BY SIMILARITY
E -> Q (IN REF
97.9%; Score 460; 98.9%; Pred. No. 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota, Metazoa, Chordata, Craniala,
Mammalia, Eutheria, Primates, Catarrhin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE: PS00266; SOMATOTROPIN_1; 1.
PROSITE: PS00338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBCELLULAR LOCATION: Secreted.
                                                                                                                                                                                                                                                        ..
[X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       interPro: IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-94008724; PubMed-8404617;
                                                                                                                                                                                                                                                                                                                                                                                        Macaca mulatta (Rhesus macaque).
                                                                                                                                                                                                                                                                                    01-0CT-1993 (8el 27, created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL: 116556; AAA18842.1; *.
PiR: 167410; 167410.
HSSP: P01241; 1AXI.
                                                                                                                                                                                                                                                                                                                                                          hormone) (Growth hormone 1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pituitary; Signal.
                                 Conservative
                                                                                                                                                                                                                                                      STANDARD:
                                                                                                                                                                                                                                                                                                                                                                                                                                           Cercopithecinae, Macaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam: PF00103; hormone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            191
215
100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 27-217.
               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SECUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCB!_Tax ID=9544;
Query ...
Best Local Similar
                                                                                                                                                                                                                                                      SOMA MACKU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DISULFID
DISULFID
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hormone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIGNAL
                                                                                                                                                                                                                                                                      F33093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                      ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration the European Bioinformatics on the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ish-sib.ch/announce/or send an email to license@ish-sib.ch).
                                                                                ó.
                                                                                                                 2 FPTIPLSRLFUNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27 FPIIPLSRLFDNAMLRAHRLHOLAFDTYQEFEEAYIPKEQKYSFLONPQTSLCFSESIPT 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Revol A., Esquivel D., Santiago D., Burrera Saldana H.;
Revol A., Esquivel D., Santiago D., Burrera Saldana H.;
Independent duplication of the growth hormone gene in three
Anthropoidean lineages.'
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
FPUNTION: Plays an important role in growth control. Its major
Fole in stimulating body growth is to stimulate the liver and
other tissues to secrete IGF-1. It stimulates both the
differentiation and proliferation of myoblasts. It also stimulates
amino acid uptake and protein synthesis in muscle and other
tissues (By similarity).
Figure Edition: Secreted.
                                                                                                                                                                                                                                                                                                                                                28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Somatotropin precursor (Growth hormone) (GH) (GH:N) (Pitultary growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFERAYIPKEQKYSFLQNPQTSLSFSFSIPT
                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryofa, Metazóa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia: Eutheria, Primates, Catarrhini, Hominidae, Pan.
NCBL_TaxID=9598;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -! SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY
                                               . DB 1; Length 217;
8.8e-41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1: Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indeis
N >> D (IN REF. 2).
: 2C5180341EEC46D0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEA295EDE0518674 CRC64;
                                                                                                                                                                                                    62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOMATOTROPIN.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 8.86
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIMILARITY
                                                 Score 460;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 460;
                                                                  Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRINTS: PRO0836; SOMATOTROPIN.
PROSITE; PS00266; SOMATOTROPIN_1: 1.
PROSITE; PSC0338; SCMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AF374232; AAL72284.1; -.
InterPro; IPR001400; Somatotropin.
Pfam; PF00103; hormone: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ж
                                                                                                                                                                                                                                                                                                                                  28-FEB-2003 (Rel. 41, Created)
               24913 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24843 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Pan troglodytes (Chimpanzee).
                                               97.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .86.85
                                                                                                                                                                                                                                                                                                                                                                                                    hormone) (Growth hormone 1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hormone, Pituitary, Signal
                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity 98.9
es 90; Conservative
                                                                                                                                                                                                                                                                                                    STANJARDS
               217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        217 AA;
                                                                  Local Similarity
                                                                                90;
                                                                                                                                                                                                                                                                                                SOMA PANIE
            SEQUENCE
                                                 Query Mat.ch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIGNA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                  SOMA_PANTE
                                                                                Matches
                                                                                                                                                                                                                                                               RESULT 3
                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                  ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the FNBL outsiation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license afterement (See http://www.isb sib.ch/announce/or send an email to licenseitsbrsib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 FPTIPLSRLFDNAMLRAHRLHOLAFOTYOEFEEAY!PKEQKYSFLONPQTSLSFSKS1PT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-21565430; PubMed-11371582; MEDLINE-21565430; PubMed-11371582; MEDLINE-21565430; PubMed-11371582; MEDLINE-21565430; PubMed-11371582; Eiu J.C., Makova K.D., Adkins R.M., Gibson S., Li W.H.; Species specificity of human growth hormone in primates and emergence of the Mol. Biol. Evol. 18:945-953(2001).

FUNCTION: Plays an important role in country. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete [GPT-1 If stimulates both the differentiation and proliferation of myobiasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                      Saimiri boliviensis boliviensis (bolivian squirrel monkay).
Eukaryota: Metazoa: Chordata: Craniata: Vertebrata: Enteleostomi:
Mammalia: Eutberia: Primates: Plutyrivini: Petidao: Peninae: Sairiii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tissues (By similarity).
SUBCELLULAR LXXATION: Secreted.
SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BY SIMILARI.
BY SIMILARII.
951528999, 152997 CRU64:
                                                                                                                                                28 FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last Sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
                  7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        217 AA
62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62 PSNREETQOKSNLELLRISLLLIQSWLEPVQ
                                                                                                                                                                                                        Somatotropin precursor (Growth hormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HY SIMILARI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOMATOTROP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; iPR001400; Somato.ropin.
Pfam: PF00103; hormone; 1.
PR1NTS; PR00836; SOMATOTROPIN.
PROSITE: PS00286; SOMATOTROPIN.
PROSITE: PS00338; SOMATOTROPIN.
HOrmone: Pitulitary; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   208 215 E
217 AA; 24864 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; AF349060; AAK62287.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
                                                                                                                                                                                                                                                                                         NCB1_, Lax : L - 354 v.z.;
                                                                                                                   SOMA_SAIBB
P58343;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOMA_CALJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DISULFID
SEUDENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9GMB3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOMA_CALJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>۾</u> ۾
                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                             g
```

ċ

(Japs

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the SWISS institute or Bloiformatics and the EMBL outstation the Deropean Robinformatics I fitute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or scud an email to license-4isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 FPT1PLSKLFDNAMLRAHRLHQLAFDTYOEPEEAY1PKEQKYSFLONPQTSLSFSES1PT 61
                                                                                                                                                                                            PADIS O.C., Wallis M.;

"Cloning and characterisation of a putative growth hormone encoding gene from the marmoset (Callithir jacchus)."

Submitted (AUG-2000) to the EMBL/Genbank/DDBJ databases.

FUNCTION: Plays an important role in growth control. its major rele in stimulative body growth is to stimulate the liver and other tissues to secrete (DP-1). It strandates both the differentiation and profile myd-lasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Growth hormone variant precursor (GH-V) (Placenta-specific growth hormone) (Growth hormone 2).
                                                                                                    Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria: Primates; Platyrihini; Callitrichidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pan troglodytes (Chimpanzee).
Eukaryota; Metazoa; Chordata; Craniata; Verfebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
O
                                                                                                                                                                                                                                                                                                                                                 Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 432; DB 1; Length 21-
Pred; No. 7.2e 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8102151A12CE6192 CRC64;
28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BY SIMILARITY.
SOMAIOTROPIN.
BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           91.9%; Score 432; DB 91.2%; Pred. No. 7.2e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62 PSNREETQGKSNLELLRISLLLIOSWLEPVC 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5; Mismatches
                                                   Somatotropin precursor (Growth hormone)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00103; hormo:e; 1.
PROSITE; PS00266; SOMATOTROPIN_1: 1.
PROSITE; PS00338; SOMATOTROPIN_2: 1.
                                                                                  Callithrix jacchus (Common marmoset)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     217 AA; 24959 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL: AJ297563; CAC03481.1; - HSSP: P01241; 1A22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hormone; Pituitary; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
Best Local Similarity 91.28
Matches 83, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       215
                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                  NCBI_TaxID=9483;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID-9598;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOM2_PANTR
P58757;
                                                                                                                                  Callithrix.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISULFID
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOM2_PANTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
```

```
evelution.
                                                                                                                                                                                                                                                                                                                                                                                                                                       REVIEW.
     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Furopean Bioinformatics institute. There are no restrictions on its use by non-profit institutions as load as its content is in no way modified and this statement is not reserved. Seado by and in no way
                                                                                                                                                                                                                                                                                                                                                                             ÷:
                                                                                                                                                                                                      entities requires a license agreement (see http://www.isb sio.ch/mimounce)
or send an email to licenseelish-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                             2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKHQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                       differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                              Caps
                Growth hormone variant precursor (GH-V) (Placenta-specific growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota, Metazoa: Chordata: Craniata; V-rrebrata; Eutoleostomi;
Mammalia: Eutheria: Primates: Catarrhin: Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "The human growth hormone gene family: nucleotide sequences show recent divergence and predict a new polypeptide hormone.";
                                                                                                               -:- SUBCELLULAR LOCATION: Secreted.
-:- TISSUE SPECIFICITY: Expressed in the placenta.
-:- SIMILARITY: BELONGS TO THE SUMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                       91.5%; Score 430; DH 1; Length 217; 93.4%; Pred. No. 1.2e-37;
                                                                                                                                                                                                                                                                                                                                                                          3: Indels
                                                                                                                                                                                                                                                                                                      GROWTH HORMONE VARIANT.
BY SIMILARITY.
BY SIMILARITY.
1592A429075677DE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P01242: P09587;
21 JUL-1986 (Rel. Gl., Created)
28-FEB-2003 (Rel. 41, Last Sequence ::pdate)
15-SEP-2003 (Rel. 42, Last, acnotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                             62 PSNREETQUKSNLELLRISLLLIQSWLEPVO 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       217 AA
                                                                                                                                                                                                                                                                               Hormone; Placenta; Signal; Glycoprotein.
SIGNAL: 26 BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                            3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. (ISOFORMS 1 AND 2).
                                                                                                                                                                                                                                                              PROSITE: PS00266; SOMATOTROPIN_1: 1.
PROSITE: PS00338; SOMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT:
                                                                                                                                                                                                                                            InterPro; JPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-83182010; PubMed-7169009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-88243769; PubMed-3379057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. (ISOFORM 1)
                                                                                                                                                                                                                                                                                                                                    24990 MM;
                                                                                                                                                                                                                                  EMBL: AF174233; AAL72285.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hormone) (Growth hormone 2).
                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                      Ptam: PF00103; hormone;
                                                                                                                                                                                                                                                                                                      217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                       27 2
79 1
208 2
217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA 1:239-249(1982).
                                                                                                                                                                                                                                                                                                                                                               Local Similarity
nes 85; Conserv
         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCB1_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Seeburg P.H.;
                                                                                                          sanssi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SCM2_HUMAN
                                                                                                                                                                                                                                                                                                                DISULFID
                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                         DISULFID
                                                                                                                                                                                                                                                                                                                                  SECUENCE
                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                          Matches
q
                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ģ
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE Placents.

X MELLINE-2288455; Purmwel-12477932;

X Strausberg R.L., Feinquid E.A., Glouse L.H., Derge J.G.,

A Lausner R.D., Collins F.S., Wagner L., Shemmen C.M., Schuler G.D.,

A Latschul S.F., Zeeberg B., Burtow K.H., Schaefer C.F., Bhat N.K.,

A Latschul S.F., Jordan H., Moor T., Max S.L., Wang J., Hsieh F.,

A Diatchenko L., Marusina K., I mer A.A., Rubin G.M., Hong L.,

A Diatchenko L., Marusina K., I mer A.A., Rubin G.M., Hong L.,

A Rownstein M.J., Usdin T.B., Toshyvaki S., Carnina D., Frange C.,

A Rownstein M.J., Usdin T.B., Toshyvaki S., Carnina D., Brange C.,

A Roha S.S., Loquellano N.A., Heters G.J., Ablamson R.D., Millahy S.J.,

A Richards S.A., McEwan P.J., McKernan K.J., Malek J.A., Gubz H.J.,

A Richards S.A., McEwan P.J., McKernan K.J., Malek J.A., Gubz H.J.,

A Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,

A Richards S., Morley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,

A Richards A., Woung A.C., Shevchenko Y., Houfrad G.G.,

A Milling M., Touchman J.W., Schwutz J., Myers R.M.,

B Rakealey R.W., Touchman J.W., Skaiska U., Smailus D.E.,

A Butterfield Y.S.N. Krzywinski M.L., Skaiska U., Smailus D.E.,

C Generation and initial analysis of more than 15,000 full-length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            It also stimulates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lissues.
SUBUNIT: Monomer, dimer, 'rimer, tetramer and pentamer, disulfide-
linked or non-covalently associated, in homopolymeric and
heteropolymeric combinations. Can also form a complex either with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "The human growth hormone locus: nucleotide sequence, biology, and
Cooke N.E., Ray J., Emery J.G., Liebhaber S.A.; "Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Note-No experimental confirmation available;
-!- TISSUE SPECIFICITY: Expressed in the placenta.
-!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                              SEQUENCE FROM N.A. (ISOPORM 1).
MEDELINE-89024984; PubMed-2466050;
Jout A., Scippo M.L., Frankenne F., Hennen G.;
"Cloning and nucleoride sequence of placental hGH-V cDNA.";
Arch. Int. Physiol. Biochim. 96:63-67(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-89307277; PubMcd-2744760;
Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A.,
Gelinas R.E., Sceburg P.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          human and mouse cDNA sequences.";
Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GHBP or with the aipha2-macroglobulin complex.
-:- SUBCELLUIAR LOCATION: Secreted.
-:- ALTERNATIVE PRODUCTS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Event-Alternative splicing: Named isotorms-2;
Name-1; Synonyms-GH-V1;
IsoId-P01242-1; Sequence-Displayed;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Name=2; Synonyms=GH-V2;
Isold=P01242-2; Sequence=VSP_006203;
                                                                                                                                                                      . Biol. Chem. 263:9001-9006(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-99321812; PubMed-10393484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genomics 4:479-497(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SECUENTE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Baumann G.;
```

```
TISSUE-Placenta;
                                                                                                                                   tissues.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PLL_HJMAN
                                                                                                                                                                                                                                                                                                                                                                                                                       CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                    DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                 SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
     ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for connecrain entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED (GECNAC, ...) (POTENTIAL),
RLEDGSPRIGGIFNOSYSKPOTKSHNDDALLKNYGGLYGPR
KOMDKVETFIRIVGGKSVEGSGGF > VRVAPGIPNPGAP
                                                                                                                                                                                                                                                                                                                          LASRDWGEKHCC: FSSQALTQENSPYSSFPLVNPPGLSTJ.
PGGEGGKWMNERGREJCPSAWPLILFLHFAFAFAGPPPJWA
                                                                                                                                                                                                                                                                                                                                                                                                                                              C: Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOM2_MACMU STANDARD, PRT: 217 AA.
007370; 024894;
01-NV-1997 (Rel. 35, Created)
01-NV-1997 (Rel. 35, Last Sequence update)
28-FER-2003 (Rel. 41, Last annotation update)
28-FER-2003 (Rel. 41, Last annotation update)
66rowth hormone variant precursor (GH-V) (Placenta specific quarthormone)
66rowth hormone variant precursor (GH-V) (Placenta specific quarthormone)
67rowth hormone 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota, Metazoa: Chordata, Craniata: Verfebrata, Euteleostomi:
Mammalia: Eutheria: Primates, Catarrhini: Gercopithecidae;
                                                                                                                                                                                                                           Hormone, Placenta: Signal: Olycoprofein: Alternative spiicing;
                                                                                                                                                                                                                                                                                                                                                                                                                      89.8%; Score 422; DB 1; Length 217; 92.3%; Pred. No. 7.8e-37;
                                                                                                                                                                                                                                                                                                                                                                                                                                             4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (JAN-1994) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                           /FTId-VAR_014591.
1 -> T (IN REF. 2).
789324698E822F96 CRC64;
                                                                                                                                                                                                                                                                                                                                              DLQSVLQQV (in i.oform 2).
/FTId-VSP_096263.
                                                                                                                                                                                                                                                                                                                                                                 R -> W (IN dbSNP:5389).
                                                                                                                                                                                                                                                          GROWIN HORMONE VARIANT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1111 :1111 | HILLIFFHHHELEHHE.
87 PSNRVKTQQKSNLELLRTSLLLTQSWLEPVO :17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62 PSNREETQQKSNLELLRISLLL1QSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 7.8e
3; Mismatches
                                                                                                                                                                                                                                                                     BY SIMILARITY BY SIMILARITY
                                                                                                                                                                   GO: GO:GO:GO:GIAG: F:peptide kersene: TAS.
InterPro; IPRC:403: Sommatori più.
Pfam: PFOOL:3: hermene: l.
                                                                                                                                                                                                     PROSITE: PSOGZEG, SOMATCIPOLINI, C. PROSITE: PSOGSAME SOMATCIPOPIN, S. L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Macada mulatta (Rhesus macaque).
                                                 EMBL; K00470; AAA98619.1; --
EMBL; J03756; AAB59547.1; --
EMBL; W13756; AAB59548.1; --
EMBL; W18451; AAA5587.1; --
EMBL; J03071; AAA52552.1;
EMBL; RCU20760; AAH20760.1;
                                                                                                                                                                                                                                                                                                                                                                                                 24999 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                           84; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cercopithecinae; Macaca.
                                                                                                                 PIR: A28072; STHUV2.
PIR: D32435; STHUV.
HSSP: P01241; IA22.
Genew: HGNC:4262; GH2.
                                                                                                                                                                                                                                                26
217
191
215
166
166
                                                                                                                                                                                                                                                                                                                                                                                                 217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SECUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                  3
                                                                                                                                                                                                                                                         27
79
208
166
153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID~9544;
                                                                                                                                                                                                                                   Polymorphism.
SIGNAL
                                                                                                                                                  Genew: HGNC:
MIM: 139240;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Golos T.G.;
                                                                                                                                                                                                                                                                    DISULFID
                                                                                                                                                                                                                                                                               DISULFID
                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                      CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                  VARIANT
                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
```

```
this swiss prof entry is captigni. It is produced through a collaboration between the Swiss Institute of high chearies and the EMBL outstation has been predictionalies institute. There are no restrictions on its use by non-profit fastitutions as large as its content is in no word modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to licensewlsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6.1
                                                                                                                                                                                                                    toke in stimulating body growth is to stimulate the liver and other tissues to secrete 10Fr. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27 FPTIFLSWJENTAVERAHHGERJAFDTYPKLEEAYIPKEGKYSFLRNPQTSLCFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 FPT1PLSRLFUNAMLRAHRLHQLAFOTYGEFEEAYTPKEQKYSFLQNPQTSLSFSESTPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21-JUL-1986 (Rel. 01, Greated)
01-APR-1988 (Rel. 07, Last sequence update)
15-SEP-2003 (Rel. 42, Last afmodiation update)
Lactogen precursor (Choriomammotropin) (Chorionic somatomammotropin).
CSHI AND CSH2.
HOMO sapiens (Human).
                      Golos T.G., Burning M., Fisher J.M., Fowler P.D.,
"Cloning of four growth hormone/chorionic somatomammotropin related complementary decaytibonucleic acids differentially expressed during pregraucy in the rhesus monkey placenta.";
Endocrinology 133:1744-1752(1993).

FUNCTION: Plays an important role in growth control. Its major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota, Metazoa, Chordata, Traniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Jatarrhini, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               €
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. (GEAE CSH1).
MEDLINE-85030426; PubMed-6208192:
Selby M.J., Barta A., Baxter J.D., Bell G.I., Eberhardt N.L.;
                                                                                                                                                                                                                                                                                                                                                                                                 -t-TISSUE SPECIFICITY: Expressed in the placenta.
-t-SIMILARITY: HELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       84.3%; Score 396; DB 1; Length 217;
84.6%; Pred, No. 3.9e 34;
Live 6; Mismatches 8; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8DB116CBC24EA090 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BY SIMILARITY.
GROWIH HORMONE VARIANT.
                                                                                                                                                                                                                                                                                                                                                                       !- SUBCELLULAR LOWATION: Secreted (By Similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BY SIMILARITY.
BY SIMILARITY.
L -> F (IN REF. 2).
E -> G (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hormone, Placenta: Signal: Glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DITECPTO, 1PRO01400; Somatotropin.
Pfam. PF00103; hormone: 1
PRINTS; PR000836; SOMATOTROPIN.
PROSITE; PS00266; SOMATOTROPIN.
1: 1
PROSITE; PS00338; SOMATOTROPIN.
2: 1.
MEDLINE-94008724; PubMed-8404617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27 217 GRI
79 191 BY
208 215 BY
57 57 L
152 152 E
217 AA; 25221 MM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; 102293; AAA03391.1; -. EMBL; 1.16555; AAA20180.1; ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217
191
215
57
152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIR; [674]]; [674]].
HSSP; P0124]; 1HGU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
es 77; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=9606;
```

```
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE-Placenta, and Uterus;

XX MEDLINE-22388257; PubMed-12477932;

XA Klausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,

XA Klausher R.D., Collins F.S., Wagner L., Shemmen C.M., Schuler G.D.,

A Altschul S.F., Zeeberg B., Buetow K.H., Schaerer C.F., Bhat N.K.,

A Hopkins K.F., Jordan H., Moore T., Max S.L., Wang J., Hisler F.C.,

A Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,

A Browstein M.J., Usdin T.B., Toshlyuki S., Carrinor B., Pranqe C.,

Browstein M.J., Usdin T.B., Toshlyuki S., Carrinor B., Pranqe C.,

Raha S.S., Loqiellano N.A., Peters G.J., Atramson R.D., Mullahy S.J.,

Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratce P.H.,

Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,

Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,

Kandrigg M., Madan A., Young A.C., Shevctenko Y., Boutfard G.G.,

Rodriguez A.C., Grimwood J., Schmutz J., Myers R.W.,

Butterfield Y.S.N., Krzywinski M.T., Skalska U., Smailus D.E.,

Cheneration and initial analysis of more than 15,000 full-length.

Butter A. Schein J.E., Jones S.J.M., Marra M.A.;

Chena and mouse colba sequences.";
*Analysis of a major human chorionic somatomammotropin gene. Evidence for two functional promoter elements.";
J. Biol. Chem. 259:13131-13138(1984).
                                                                                                                                                                                                                                                                    MEDLINE-893/07277; PibMed-2744760;
Chen E.Y., Liao Y.C., Smith D.H., Barreru Caldana H.A., Gelicas R.E.
                                                                                                                                                                                                                                                                                                             The human growth hormone locus: nucleofide sequence, biology, and
                                                                                                                                                          ASQUENCE FROM N.A.
MEDIJNE-83160916: PubMed-6300056;
Marrera-Saldana H.A., Seeburg P.H., Saunders G.F.,
"Two structurally different genes produce the same serreted human placefula lactomen formone.";
J. Brol. Chem. 258.3787-479 (1983).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seeburg P.H., Martial J.A., Baxter J.D., Goodman H.M.;
Flon and analysis of recombinant DNA for human chorionic
                                                                                                                                                                                                                                                                                                                                                                                                      "The human growth hormone gene tamily: nuclue ide sequences show recent divergence and predict a new polypeptide hormone.";
                                                                            Hirt H., Kimelman J., Birnbaum M.J., Cher E.Y., Seeburg P.H., Eberhardt N.L., Barta A.:
"The human growth hormone gene locus: structure, evolution, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JI C.H., Dixon J.S., Chung D.; Amino acid sequence of human chorionic somatomamotropin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Proc. Natl. Acad. Sci. U.S.A. 99:16899 16963(2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Biophys. 155:95-110(1973).
                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. (GENES CSHI AND USHZ).
                                                    SEQUENCE FROM N.A. (GENE CSH2).
MEDLINE-87161235; PubMed*3030680;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDI.INE-73201971; PubMed-4712450;
                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-83182010; PubMed 7169009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SECUENCE OF 50-217 FROM N.A.
MEDLINE-78071761; Pubmed-593368;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-72016313; PubMed-5286363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nature 270:494-499(1977).
                                                                                                                                                                                                                                                                                                                                        Genomics 4:479-497(1989).
                                                                                                                       variations.";
                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA 1:239-249(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 27-117.
                                                                                                                                  DNA 6:59-70(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Construction and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             somatomammotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Biochem.
                                                                                                                                                                                                                                                                                                  Seeburg P.H.;
                                                                                                                                                                                                                                                                                                                                                                                           Seeburg P.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SECUENCE OF
                                                                                                                                                                                                                                                                                                                             evolution.
                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                        allelic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Shine J
```

```
This SM:SS-PROT entry is copyright. It is produced inrough a collaboration between the Swiss institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 TIPLSRLFUNAMLRAHRLHQLAFDTYQEFFEAYIPKFOKYSFLQNPQTSLSFSESIPTPS 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1:111111:111:111:111 | 1111 | 1111111 | 1111:11111 : 111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:111 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 11:11 | 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0: Gaps
                                                                                                                                                                                                                                                                                                                                                   INTERCHAIN (WITH C-215 IN A DIMER).
[INTERCHAIN (WITH C-208 IN A DIMER).
P -> A (IN CSH2).
/FIId-VAR_007166.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41.1%; Score 381; DB 1; Length 217; 82.0%; Pred. No. 1.4e-32; Arive 8; Mismatches 8; Indels
                                                                                                                                                                                                  Sherwood L.M., Handwerger S., McLaurin W.D., Lanner M.;
Nature New Biol. 235:64-64(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SDD -> BBS (IN REF. 9).
235B0DC7A713F431 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IS -> L (IN CSH2).
/FIId-VAR_007167.
1 > T (IN REF. 9).
MISSING (IN REF. 9).
MISSING (IN REF. 9).
Sherwood L.M., Handwerger S., McLaurin W.D., Lannu
"Amino-acid sequence of human placental lactogen."
Nature New Biol. 233:59-61(1971).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF00103; hormone; 1.
PROSITE; PS00266; SOMATGIROPIN_1; 1.
PROSITE; PS00338; SOMATGIROPIN_2; 1.
Hormone; Placenta; Multigene family; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LACTOGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR001400; Somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MIM; 150200; -.
GO: GO:0007565; P:pregnancy; TAS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; VC0573; CAA23436.1; -...
EMBL; J00289; AAA52115.1; -...
EMBL; M1584; AAA52116.1; -...
EMBL; J03071; AAA5255.1; -...
EMBL; J00118; AAA5255.1; -...
EMBL; BC002921; AAH05921.1; -...
EMBL; BC002921; AAH05921.1; -...
EMBL; BC005921; AAH05921.1; -...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25020 MW;
                                                                                                                                                                                                                                                                                                                             INTERCHAIN DISULFIDE BONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genew; HGNC:2440; CSH1.
Genew; HGNC:2441; CSH2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     131
215
208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIR; A26449; A26449.
PIR; C32435; LCHUC.
HSSP; P01241; 1A22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      84
95
116 1
134 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Simi
Matches 73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DISULFID
DISULFID
DISULFID
VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                            ERRATUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
differentiation and proliferation of myoblasts. It also stimulates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 FPTIPLSRLFDNAMLRAHKLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sipova E.A., Balator A.A., Pankov Y.A., Structural studies of trypic peptidus from adeptidus structural studies of trypic peptidus from adeptidus solved sol
                                                                                                                                                                                   Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Cetartiodactyla, Cetacea, Mysticeti,
Balaenopteridae, Balaenoptera,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65.4%; Score 307.5; DR 1; Length 196; 67.0%; Pred. No. 5.2e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BY SIMILARITY.
BY SIMILARITY.
09FBFF6DR14A7556 CRC64:
                                                                                                                                                                                                                                                                                                                                                                                      Yudaev N.A., Pankov Y.A., Bulatov A.A., Osipova T.A., "Amino acid sequence of seiwhale somatotropin.";
         01-OCT-1993 (Rel. 27, Created)
01-OCT-1993 (Rel. 27, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62 PSNREETGOKSNIELLRISLILLTOSWLEPVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro: IPR001400; Sumatotropin.
Pfam: PF00103; hormone: 1.
PROSITE: PS00266; SOMATOTROPIN_1: 1.
PROSITE: PS00338; SOMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. SUBCELLULAR LOCATION: Secreted
                                                                                                                                                       Balaenoptera borealis (Sei whale)
                                                                                                                                                                                                                                                                                                                                                          MEDLINE-83000569; PubMed-7115813;
                                                                                               Somatotropin (Growth hormone).
GHI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biokhimiia 47:1059-1069(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   190 AA; 21835 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY PARTIAL SHOURN'S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR; PN0140; PN0140.
HSSP; P01241; 1AXI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hormone; Pituitary.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
                                                                                                                                                                                                                                                                       NCBI_TaxID 9768;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOMA_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFID
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P06880;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOMA_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 between the Swiss institute of Bloinformatics and the EMBL outstation—the European Bloinformatics Institute. The are no restrictions on its use by non-profit institutions as long—as its content is in no way modified and this statement is not remove—usage by and for commercial entities requires a license agreement (Sec. outp://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 FPTIPLSRLFUNAMIRAHRLHQLAFUTYQEFEERYIPKEQKYSFLQNPGTSLSFSESIFT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11 :111 | 11 | 11:111 | 11:11 | 11:31 | 11:11 | 1:11 :11 :11 :1:31 | 1:32 | PPAMPLSSLFANAVLRAQHAHQLAADTYKEFERAYIPEGGRYS-1QNAQTAFCFSFTIPA 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          role in stimulating body growth is to stimulate the liver and
other tissues to secrete IGF-1. It stimulates both the
differentiation and proliferation of myobiasts it also stimulates
amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EndocrinoLogy 129:2965-2971(1991).
                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
Mesocricetus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDIJINE-92063850, Pubmed-1954881;
Southard J.N., Sanchez-Jimenez F., Campbell G.F., Talamantes F.;
"Sequence and expression of hamster prolactin and growth hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66.1%; Score 310.5; DB 1; Length 216; 67.0%; Pred. No. 3e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     - CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3B69CE32AB6F1.
                                                                                                                                                                                                                           01-0CT-1994 (Rel. 30, Created)
01-0CT-1994 (Rel. 30, Last sequence update)
01-0CT-1994 (Rel. 31, Last annotation update)
Somatctropin precursor (Growth hormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              216 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; Pred. No. 3e-2'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           190 AA
BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOMATOTROPIN
                                                                                                                                                                                                                                                                                                                                                                             Mesocricetus auratus (Golden hamster).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROSITE: PS00266; SCHATOTROPIN_1; 1. PROSITE; PS00338; SCHATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUBCELLULAR LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR, B49159, H49159.
MASSP, POLZ46; LBAT.
InterPro; 1PR001400; Somatotropin.
Piam: PF00103; hormone: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24690 MW:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL: S56299: AAB20368.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hormone: Pituitary: Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity 67.08 61; Conservative
                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  216 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE PROMINIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID:10036;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27
78
206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         messenger RNAs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               t issues.
                                                                                                                                                                          SOMA_MESAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOMA_BALBO
P33092;
                                                                                                                                                                                                                                                                                                                                              GHI OR GH
```

```
SEQUENCE FROM N.A.
MEDLINE-85261358; PubMed-2991252;
Linzer D.I.H., Talamantes F.;
"Nucleotide sequence of mouse prolactin and growth hormone mRNAs and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciuroqnathi; Muridae; Murinae: Mus.
NCBL_TaxID-10090;
                                                                                                                                                                                                                                                                                                                                            01-JAN-1988 (Rel. 06, Created)
01-JAN-1988 (Rel. 06, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Sommatchropin precursor (Growth hormone)
GHI OR GH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       expression of these mRNAs during pregnancy.";
                                                                                 65
                                                                                                                (:1::1 11:1:1111 :1111;111 111
60 PANKDEAQORSDVELLRESLILLIOSWLGPVO 90
                                                                                                                                                                                                                                                                                             216 AA
```

DISULFID DISULFID SECUENCE Query Match Best Local

Matches

SOMA_BALBO

A D

RESULT 11

SIGNAL CHAIN

61

..

...

us-09-423-100-2.rsp

```
IGNAI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOMA_RABIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 14
        ŝ
                                                                                                                                                                                                                                                                                                                                                       This SWISS PROT entry is copyright; is treduced through a collaboration between the SWISS Braiting of Broomform. So and the FMEL or station the European Biointormatics institute. If reare no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not remove. Usage by and for commercial entities requires a license agreement (Sc. http://www.isb.sib.ch/announce/or send an email to license@isb.sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYGFFEERYIPKEGKYSFLQNPQTSLSFSFSIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11 :111 11 11:111 :1111 :1111 :11:11 :11 :11 :11 : 11:11 : 11:11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :11 :
                                                                                                                                                             Gene: i69:209-213(1996).

-1- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                   SEQUENCE FROM N.A.
STRAIN-FIDU, TISSUE-Liver;
MEDINE-96194803: PubMed-8647448;
Das P., Moyer L., Seyfert H.-M., Brockmann G., Schwerin M.:
"Structure of the growth hormone-encoding gene and its promoter in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota: Metazoa: Chordata; Craniata: W. Lebrata; Euteleostumi:
Mammalia: Eutheria: Perissodactyla; Equiu...; Equus.
                                                                                                                                                                                                                                                                                                               -1- SUBCELLULAR LOCATION: Secreted.
-1- SIMILARITY: BELCHGS TO THE SCHATOTROPIN/PROLACTIN PARTITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1; Length 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.2e-24;
thes 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98666A3AE25D65FC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-UUL-1946 (Rel. 01, Created)
01-NrV-1995 (Rel. 32, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE-Pituitary;
MEDLINE-94266171; PubMed-8206392;
Ascacio-Martinez J.A., Barrera-Saldana H.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOMATOTROPIN.
BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64.8%; Score 304.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 PSNREETQOKSNLELLRISLLLIOSWLEPVO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Somatotropin precursor (Growth hormone)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam: PF0U103: hormone: 1.
PROSITE: PS60266; SOMATOTROPIN_1: 1.
PROSITE: PS00338: SOMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT
Biol. Chem. 260:9574-9579(1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro: 1PR001400; Somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24716 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; X02891; CAA26650.1; -. EMBL; Z46663; CAA86658.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hormone: Pituitary; Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216
189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Equas caballus (Horse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        78 1
206 2
216 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
les 59, Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P01246; 1BST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MGD: MGI:95707: Gh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIR; B23911; STMS.
HSSP; P01246; 1BST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=9796;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOMA_RORSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SPUTENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIGNAL
                                                                                                                                                 mice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOMA_HORSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss institute of bioinformatics and the EMBL outstation the European Bloinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license aftrement (See http://www.isbrsib.ch/announce/or send an email to license*isb.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FUNCTION: Plays an important role in growth centrol. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and proliferation of myoblasts. It also stimulates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zakin M.M., Poskus E., Jellacha J.M., Paladini A.C., Santome J.A.; "Amino acid sequences around the systime residues in equine growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oliver L., Hartree A.S.; "Amino acid sequences around the cystine residues in horse growth
                                                                                                                                                                                                                                                                                                                                                                                         Santome J.A.
                                                                                                                                                               Zakin M.M., Poskus E., Langton A.A., Ferrara P., Santome J.A.,
Dellacha J.M., Paladini A.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64.4%; Score 302.5; DB 1; Length 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -!- SUBCELLULAR LOCATION: Secreted.
-!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match

Best Local Similarity 64.8%; Pred. No. 2e-24;

Matches 59; Conservative 14; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24423 MW; 37AB3173834D11AC CRC64;
                                                                                                                                                                                                                                                                                                                                                    MEDLINE-74020362; PubMod-4747849;
Zakin M.M., Poskus E., Dellacha J.M., Paladini A.C.,
"The amino acid sequence of equine growt; hormone.";
"Sequence of a cDNA encoding horse growth hormone."; Gene 143:299-300(1994).
                                                                                                                                                                                                                         'Primary structure of equine growth hormone.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Int. J. Pept. Protein Res. 8:435-444(1976)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SCMATOTROPIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam: PF00103; hormone: 1.
PROSITE; PS00266; SOMATOTROPIN_1; 1.
PROSITE; PS00338; SOMATOTROPIN_2; 1.
Hormone: Pituitary: Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF 202-216,
MEDLINE-68368390; Pubmed-4876100;
                                                                                                                             MEDLINE-77005410; PubMed-965151;
                                                                                                                                                                                                                                                                                                                        PRELIMINARY SEQUENCE OF 27-216.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 68 95 AND 183-216.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; U02929; AAA21027.1; -. HSSP; P01246; 1BSI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEBS Lett. 34:353-355(1973).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Biochem. J. 109:19 24(1968).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEBS Lett. 25:77:82(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  189
                                                                                        SEQUENCE OF 27-216.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   216 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hormone.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hormone.
```

us-09-423-100-2.rsp

```
norvegicus (Rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ouery Match
Best Local S:
Matches 59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DISULFID
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                    SOCIO DE LA RELATARIA DE LA CARTA DEL CARTA DE LA CARTA DEL CARTA DE LA CARTA DEL CARTA DE LA CARTA DEL CARTA DE LA CARTA DEL CARTA DE LA 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Biointormatics and the EMBL outstation the European Biointormatics Institute. There are no restrictions on its use by non-profit institutions as ione as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See Ottp://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 FPTIPLSRLFDNAMLRAHRLHQLAFOTYQEFERAYIPKEQKYSELQNPQTSLSFSESIFT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 :111 11 :1:111 | 1:111 | 1:111 | 1:11 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 | :1 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION: Plays an important role in growth routed. His major role in stimulating body growth is to strandare the liver and other tissues to secrete 1GF-1. It stimulates both the differentiation and proliferation of mystasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN-New Zealand white;
MEDLINE-96011643: PubMed-7590276;
Wallis O.C., Wailis M.;
"Cioning and characterisation of the rabbit growth hormone encoding
                                                                                                                                                                                                                                                              Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria: Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64.4%; Score 302.5; DB 1; Longth 216; 64.8%; Pred, No. 2e-24; ive 14; Mismatches 17; Indels 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6EC19748199F9D75 CRC64;
                                                                    01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
GHI OR GH.
        216 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62 PSNREETOOKSNLELLRISLLLIOSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1: ::1 [1:1::[[[] [[[] []] ]]] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 [] | 1: ::1 []
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HY SIMILARITY
BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOMATOTROPIN
                                                                                                                                                                                         Somatotropin precursor (Growth hormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pram: PF00103; hormone: 1.
PRINTS: PR00836; SOMATOTROPIN.
PROSITE: PS00266; SOMATOTROPIN.]: 1.
PROSITE: PS0038; SOMATOTROPIN.2: 1.
        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUBCELLULAR LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IPR001400; Somatotropin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       216 AA: 24433 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL: 7.38127; CAA86287.1; -. PIR; S49483; S49483.
HSSP: P01246; 1BST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hormone; Pituitary; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gene 163:253-256(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
es 59; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                            [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID-9986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lissues
SOMA_RABIT
P46407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOMA_HAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOMA_RAT
    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

```
This SWISS-PROI entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMFL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb.sib.ch/announce/or send an email to license*isb.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Neuroimmunomodulation 2:108-114(1995).

-!- FUNCTION: Plays an important role in growth control. Its major role in stimulating hody growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myobiasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Seeburg P.H., Shine J., Martial J.A., Haxler J.D., Goodman H.M.;
"Nucledide sequence and amplification in bacteria of structural gene
Informat prowth homose."
                                                                                                                                                         MEDLINE-82059526; PubMed-6272224;
Page G.S., Smith S., Goodman H.M.;
*DNA sequence of the rat growth hormone gene: location of the 5'
Lerminus of the growth inormone mRNA and identification of an internal
transposon-like element.";
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Cloning and nucleotide sequencing of rat lymphocyte growth hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Barta A., Richards R.1., Baxter J.D., Shine J.;
"Primary structure and evolution of rat growth hormone gene.":
Proc. Natl. Acad. Sci. U.S.A. 78:4867-4871(1981).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. SUBCELLULAR LOCATION: Secreted.
1. SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64.4%; Score 302.5; 08 1; Length 216; 64.8%; Pred. No. 2e-24:
Live 14; Mismatches 17; Indels 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BY SIMILARITY.

BY SIMILARITY.

F > 1. (IN REF. 2 AND 4).

CABF49DCOB2A226C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR001400; Symatotiopin.
Pfam: PF00103; hormone: 1.
PROSITE: P500266; SOMATOTROPIN.]: 1
PROSITE: P500338; SOMATOTROPIN._2: 1.
                                                                                                                                                                                                                                                                                                                             Nucleic Acids Res. 9:2087-2104(1981)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IISSUE+Liver;
MEDLINE+82060155; PubMed+6946433;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN~Sprague-Dawley;
MEDLINE~96056604; Pubmed~85211 ;;
Rohn W.M., Weigent D.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-7807:760: PubMed-339105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27 F
24656 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL: V01237; CAA24547.1: -.
EMBL: V01238; CAA24548.1;
EMBL: V01239; CAA24549.1; -.
EMBL: U62779; AAB04625.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hormone; Pituitary; Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nature 270:486-494(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  189
214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27
78
206
27
216 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1BST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR; A93725; STRT.
HSSP; P01246; IBST
                                                                                                                             SEQUENCE FROM N.A.
                                                              NCB1_TaxID=10116;
```

⁶² PSNREETOOKSNLELLRISELLIOSWIEPVO 22 1: 11 11::::1111 11111111 1:1 86 PTGKEEAQORTDMEILAFSLLIOSWLGPVØ 116

Search completed: September 15, 2003, 12:01:29 Job time : 8.57348 secs

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

OM protein - protein search, using sw model

September 15, 2003, 11:54:30; Search time 35.9427 Seconds (without alignments) 660.520 Million cell updates/sec

US-09-423-100-2 Title: Perfect score: Sequence

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

830525 Total number of hits satisfying chosen parameters: 830525 segs, 25#052664 : 0814068 Searched:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match U%
Maximum Match 100%
Listing first 45 summaries

SPTREMBL_23:* Database :

sp_unclassified:* sp_invertebrate:* sp_vertebrate:* sp_rvirus:*
sp_bacteriap:* sp_organelle:* sp_phage:* sp_archea:*
sp_bacteria:*
sp_fungi:*
sp_human:* sp_rodent:* sp_mammal:* sp_mhc:* sp_plant:* sp_virus:* Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

sp_archeap: •

	Description	Q8wne0 ateles geof	014644 homo sapien	Q07369 macaca mula	Q07368 macaca mula	007367 macaca mula	Q14407 homo sapien	Q8wnd9 ateles geof	014643 homo sapien	O8mi74 callithrix	070615 spalax leuc	Q8mi73 delphinus d	Q8hye5 ailuropoda	Q9r2c3 mus musculu	Q95205 ovis aries	Q9jkm4 cavia porce	Q8mi75 callithrix
SUMMARIES	QI	O8WNE0	014644	907369	007368	007367	014407	OBWND9	014643	08MI74	070615	O8M173	Q8HYE5	Q9R2C3	095205	. 09JKM4	08M175
	. DB	9	₹	9	و	7	^	9 /	~	9 /	5 11	9	9	5 11	9	5 11	9 2
	Lengt	217	245	217	217	217	217	21.	203	21	216	216	216	216	204	216	21.
90	Query Match Length DB	92.6	86.8	84.5	84.3	84.3	81.1	74.0	71.6	67.7	65.2	64.1	64.1	63.5	63.3	63.3	63.2
	Score	435	422	397	368	386	381	348	336.5	318	306.5	301.5	301.5	298.5	297.5	297.5	297
	Result.	-	7	m	4	2	9	7	80	5	10	11	12	13	14	15	16

ö

d ô đ

O9tu2l capra hircu O9tqw9 bos indicus O9jkg0 cavia porce O95mj5 tarsius ban O9bec0 traqulus ja	Obbeby tragulus ja P78451 homo sapien O95mj6 tarsius syr O28957 sus scrofa O95240 canis famil	~ 0 0 >	CRAXX DOS MILLS 9 CRAXX DAG MILLS 9 CRAXX DAG TOTIAS PAT C90/183 CLATIAS DAT C90/183 CLATIAS DAT C90/184 Megalobrama	necerophe a cylophary hypophthary hypophtha megalobra silurus a silurus a carassius	098sr7 cyprinus ca
6 09TU21 6 09TQW9 11 09JKG0 6 095MJ5 6 09BEC0	04000	13 09PU72 6 09BDR4 4 014406 13 091386	>	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	13 Q96SR7
192 192 190 178	217 167 178 217 143	218 145 199 195	200 200 188 187 88	200 210 210 210 200 188 210 210	188
61.8 61.6 61.2 61.0 60.7	60.7 60.6 59.7 56.3				34.4
290.5 289.5 287.5 286.5 285.5	285.5 285.5 283.5 280.5 265.5	255.5 242.5 233.5	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	161.5
17 18 19 20 21	222 224 254 264	22 28 30 30	2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	тим фффф тимоффффф	45

ALIGNMENTS

Ateles geoffroyi (Black-handed spider monkey). Eukaryota: Metazoa: Chordata: Craniata: Vertebrata: Euteleostomi: Mammalia: Eutheria: Primates; Platyrrhini; Cebidae: Atelinae: Ateles. Gaps ., Revol A., Esquivel D., Santiago D., Barrera-Saldana H.:
Revol A., Esquivel D., Santiago D., Barrera-Saldana H.:
"Independent duplication of the growth hormone gene in three
Arthropoidean lineages.";
Submitted (APR-2001) to the EMBL/GenBank/DDH.1 databases.
EMBL. AF374234; AAL72286.1;
PIGENTO, IRRODIAGO; Somatotropin.
Plam: PF00103; hormone: 1.
PROSITE, PS00266; SOMATOTROPIN_1: 1.
PROSITE, PS00338; SOMATOTROPIN_2: 1.
SEQUENCE 217 AA; 24894 MW; 425829F41EEAAE6 CRC64; 92.6%; Score 435; DB 6; Length 217; 92.3%; Pred. No. 3.5e-41; Indels 01-MAR-2002 (TrEMBLrel. 20, Created) 01-MAR-2002 (TrEMBLrel. 20, Last sequence update) 01-MAR-2003 (TrEMBLrel. 23, Last annotation update) 217 AA 4; Mismatches PRT; 84; Conservative PRELIMINARY: Best Local Similarity Growth hormone. GH-N. NCBI_TaxID-9509 Query Match OBWNEO Matches OBWNEO ID DET SELECTION OF SELECTION O ó

```
TISSUE-Midpregnancy placenta;
           Ouery Match
Best Local Similarity 83.39
These 75; Conservative
                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cercopithecinae; Macaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCB1_TaxID=9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NON TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 007367;
                                                                                                                                                                                                                                                                                                                                                                     U0736E
                                                                                                                                                                                                                                                                                                                                                   007368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        007367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        007367
                                                                                                                                                     q
                                                                                                                                                                                                     ô
                                                                                                                                                                                                                                            ď
                                                                                                                                                                                                                                                                                                                                                                                                                 SO DER REPARENTANT SO DE SERVICIO DE SERVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 FPTIPLSRLFDNAMLRAHRLHQLAFOTYOEFEEAYIPKEOKYSFLONPOTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Golos T.G., During M., Fisher J.M., Fow' P.D.;

"Clouder of four growth hormone/chorionic somatomammotropin-related complementary decoyribonucleic acids differentially expressed during prequancy in the rhesus monkey placenta.";

EMBL. 11654: AAA18841.1;

HSSP: PO1241; IAXI.

InterPro; IPR001400; Somatotropin.

PROSITE: PS00266; SOMATOTROPIN_1: 1.

PROSITE: PS00338; SOMATOTROPIN_2: 1.

SEQUENCE 217 AA: 24874 MW; FIEB6AFDBBAIB185 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Caps
                                                                                                                                                                                                                                                                                                                   TISSUE-Term placenta;
MEDLINE-887777; PubMed-970963;
MEDLINE-SWELT, Svensson P.A., Jussan T., Jark B.,
Carlsson L.M.S., Carlsson B.;
"Cloning of two novel growth normany transcripts expressed in human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chorionic somatomammotropin-3.

Abacara mulatta (Rhesus macaque).

Bukaryota: Melazoa: Chordata: Craniala: Vertebrata: Eureleostomi:

Mammalia; Eutheria: Primates: Catarrini: Cercopithecidae;
                                                                                                                                                                                                              Eukaryota; Metazoa: Chordata; Craniata; Verrebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89.8%; Score 422; H.4; Length 24: 92.3%; Pred. No. 1.27-39; Live 3; Mismatches 4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14CC7F8CD73E91C8_CRC64;
                                                                                                         01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
Placental growth hormone isoform hGH-V3 precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV 1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last unnotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                            J. Clin. Endocrinol. Metab. 83:2878:2885(1998).
EMBE: AFU06061: AAB71829.1; -...
HSSP: P01241; 1A22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62 PSNREFTQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217 AM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.
                                                                                01-JAN-1998 (TrEMBLrel, 05, Created)
01-JAN-1998 (TrEMBLrel, 05, Last seq
01-DEXT-2001 (TrEMBLrel, 19, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00103; hormone; 1.
PROSITE; PS00266; SOMATOTROPIN_1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro, IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-Midpregnancy placenta;
MEDLINE-94008724; Pubmed-8404617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26 P. 27101 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 92.39
Matches 84; Conservative
                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cercopitherinae, Macaca.
NCBI_TaxID-9544;
                                                                                                                                                                                         Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      245 AA;
                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                     NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                               placenta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       007369;
                                      014644
                                                                014644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  907369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIGNAL
RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 PTIPLSRIFONAMLRAHRIHQIAFOTYQEFEEAYIPKEQKYSFLQNPQTSI.SFSESIPTP 62
                                                                                                                                     28 PSVPLSKLFDNIMMQAHRLHGLAFDTYQEFEKTYIPKEKKHSLMGNPQASFCFSESIPTP 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
"Cloning of four growth hormone/choritonic somatomammotropin-related complementary decoyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.";
Endocrinology 133:174 1752(1993).
EMBL: L16533, AAA18840.1;
HSSP; P01241; 1AXI.
                                                                                                                                                                                                                                                                                                                                                                                                                                            Cl-MAR.2003 (TrEMELIC). Ul. Last sequence apdate)
Somatchropin 2 precursor (Growth hormone 2) (Fragment).
Madadem unlatta (Rhesus andaque).
Eukaryota, Metazoa; Chordata; Craniata; Verrebrata; Euteleustomi; Mammalla; Eutheria: Primates; Calarrhini; Cercoplithecidae;
NCBI Taxinsota.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota, Metazoa: Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia: Eutheria: Primates, Catarrhini, Cercopithecidae,
                                                     ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ó.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match 84.3%; Score 396; DB 6; Length 212; Best Local Similarity 82.2%; Pred. No. 8 7e-17; Matches 74; Conservative 11; Mismatches 5; Indeis
     Length 217;
84.5%; Score 397; DB 6; Length 21
83.3%; Pred. No. 6.9e-37;
.ive 8; Mismatches 7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      212 AA; 24525 MW: 27BC91106256F6F5 CR064;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-NOV-1996 (TrEMBLrel. 01. Last. sequence update)
01-MAR-2003 (TrEMBLrel. 23. Last. annotation update)
Chorionic somatomammetropin-1.
Macaca mulatta (Rhesus macaque).
                                                                                                                                                                                                                                        212 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 83 SNLEETQQKSNLELLRISLILIQSWLEPVQ 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        217 AA
                                                                                                                                                                                                            63 SNREETQOKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63 SNREETOQKSNI.ELLRISLLI.IQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1996 (TrEMBLrel, 01, Greated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00103; hormone: 1.
PROSITE; PS00338; SOMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PR1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE-Placenta;
MEDLINE-94608724; Pubmed-8494617;
```

```
3. PTIPLISPLEDNAMLPABBELIGFAFFCYGEFFEAYTPKEDKYSFLUNDUSTSFSISTF F2
                                                                                                                                                                                                                                                                                                                         28 PSVPLSKLEDHAMTQARECHQLAFT TVQEFEEAYTPKEKKHSIMENPQASFOFAJSTF PP 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-NoV-1996 (TremBLrel, 01, Last sequence update)
01-MAR-2003 (TremBLrel, 23, Last annotal, a update)
Chorionic somatomammotropia CS-2 (Chorionic somatomammotropia hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEGUENCE FROM N.A.
MEDIJNE-89307277; PubMed-2744760;
Chen E.Y., Liao Y.C., Smith D.H., Barrer, Saldana H.A., Gelinas R.E.,
MEDLINE-94008724; PubMed-8404617; Golox T.G., Durning M., Fisher J.M., Fowler P.D.; Cloing of four growth hormone/chorinonic somalcomanmotropin-related complementary decxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta...; Fndoorinology 133:1744-1722(1993). Endoorinology 133:1744-1722(1993). HSSP: P01241: 1AXI.
                                                                                                                                                                                                                                                                          sdep to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-9110255: PubMed-1980158; Ordereak-former C.L., Phillips J.A. [1].; Profess for growth hormone gene deletions in homologous regions outside of Alu repeats.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota, Metazoa, Chordata, Craniata, Gertebrata, Buteleostomi,
Mammalia, Butheria, Primates, Catarrhin, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "The human growth hormone locus: nucleotine sequence, biblogy, evolution.":
                                                                                                                                                                                                                                       Length 217;
                                                                                                                                                                                                                                                                     S; indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Strausborg R.;
Submitted (JUL-2002) to the EMBL/GenBank/JDBJ databases
                                                                                                                              PROFITE PRODUCTS SOMETOTEOPIN.
PRINTS PROBLES SOMETOTROPIN.
PROSITE: PROBLES SOMETOTROPIN.
PROSITE: PROSISES SOMETOTROPIN.2: 1.
SEQUENCE 217 As: 24942 MW; FF5AA8915131F2BC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (JAN-2002) to the EMBL/GenBank/ DRJ databases
                                                                                                                                                                                                                                    84.3%; Score 396; DB 6;
82.2%; Pred. No. 8.9e-37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217 AA
                                                                                                                                                                                                                                                    Best Local Similarity 82.2%; Pred. No. 8.96
Matches 74: Conservative II: Mismitches
                                                                                                                                                                                                                                                                                                                                                                                         63 SNREETOOKSNLELLRISLLLIQSWLEPVQ 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1996 (TrEMBLrel. 01, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP: P01241; 1A22.
InterPro: IPR01400; Somatotropin.
Pfam. PF00103; hormone: 1.
PRINTS; PR00836; SOMATOTROPIN.
PROSITE: PS00266; SOMATOTROPIN_1: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL: BC022044; AAH32044.1; -. EMBL: BC035965; AAH35965.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Science 250:1745-1748(1990)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL: J03071; AAA52553.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genomics 4:479-497(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo Sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SECUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-Placenta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-Placenta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCB1_Tax1D-9606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Strausberg R.
                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  014407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   014437
                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 6
   င်
```

```
Ċ
                                                                                                                                                                                                                                                                                                                                  4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
                                                                                                                                                                                                                                                                                                                                                                                        1:11:11:11:11:11:11:11 1:11 1:11:11| 1:11:11| 1:11:11| 1:11| 1:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:11| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:1| 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Atelos geoffroyi (Black-handed spider monkey).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammulia; Eutheria; Primates; Platyrrhini; Cebidae; Atelinae; Ateles.
                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota, Metazoa: Chordata, Craniata: Vertebrata, Euteleostomi,
Mammalia; Eutheria: Primates; Catarrhin!; Hominidae; Homo.
                                                                                                                                                                                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SECUTION N.A.

Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;

"Independent duplication of the growth hormone gene in three Anthropoidean lineages.";
                                                                                                                                     81.1%; Score 381; DB 4; Length 217; 82.0%; Pred. No. 4.4e-35; Live 8; Mismatches 8; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24.0%; Score 348; DB 6; Length 217; 75.8%; Pred. No. 2.46.31; tive 8; Mismarches 14; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE: PSO0338; SOMATOTROPIN_2: 1.
SEQUENCE 217 AA: 24994 MW; 39FAACDDH6B2E951 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-MAK-2002 (TräMBLrel. 20, Last sequence update)
01-0CT-2002 (TrEMBLrel. 22, Last annotation update)
Growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JAN-1998 (TrEMBLIR). 05, Created)
01-JAN-1998 (TrEMBLIR). 05, Last sequence update)
01-JUN-2002 (TrEMBLIR). 21, Last annotation update)
Placental growth hormone 20kba isoform precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62 PSNREETQOKSNLELLRISHLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           202 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE-Term placenta;
MEDLINE-98373737; PubMed-9709963;
                                                                                                                                                                                                                                    73: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 75.8
Matches 69: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELLIM: NAKY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-MAR-2002 (Tremblice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens (Human)
                                                                                                                                                                                            Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCB1_TaxID:9509;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID-9606;
                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        014643;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      O8WKI 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      014643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HCH · V .
                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 8
014643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SONMEO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ô
                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFERENCE OF DEFENDENCE OF DEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>a</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3
```

216 AA

PRT;

```
PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                 SPOUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Delphinus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08MI73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q8M17 3
                                                                                                                                                                                                                                                                                                               Signal
                                                                                                                                                                                                                                                                                                                       SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08M173
               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3 PTIPLSRLFONAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPIP 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 FPTTPLSKLFUNAMLRAHRLHQLAFCTYQEFEEAYTFREGKYSFLONFGTSLSFSESTPT-61
                                                                                                                                                                                                                                                               NIQESTRANSICA 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Callithrix jacchus (Common marmoset).
Eukaryota: Metazoa: Chordata: Craniata: Vertebrata: Eufeleostom!;
Mommalia: Eutheria: Primates: Platyrrhici; Callitrichidae; Callithrix.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Saps
Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,
Carlsson L.M.S., Carlsson B.;
"Cloning of two novel growth hormone transcripts expressed in human
placenta.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wallis O.C., Hallis M.;
Characterisation of the GH gene cluster in a new-world monkey, the
marmoset (Callithix jacchus).";
J. Mol. Endocrinol. 0:0-0(2002).
                                                                                                                                                                                                    DB 4; Length 202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67.7%; Score 318; DR 6; Length 217; 68.9%; Pred. No. 5.90-28; tive 13; Mismatche: 15; Indels
                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GROWTH HORMONE LIKE PROTEIN
                                                                                                                                                                 1 26 POTENTIAL.
202 AA; 23128 MW; 38B64D011A9197C6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 217 AA; 25177 MW; SECF148798278FIA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                     01-0cT-2002 (TrEMBLrel. 22, Created)
01-0cT-2002 (TrEMBLrel. 22, Last sequence update)
01-0cT-2003 (TrEMBLrel. 23, Last annotation update)
Growth hormone-like protein 5 precursor.
                                                                                                                                                                                                 71.6%; Score 336.5; DB 4; 76.9%; Pred. No. 4.4e-30; tive 3; Mismatches 3;
                                                      J. Clin. Endocrinol. Metab. 83:2878-2885(1998).
EMBL: AF006060. AAR71828.1;
HSSP: P01241: 1A22.
HSSP: P01241: 1A22.
Pfam: PF00103; hormone; 1.
                                                                                                                                                                                                                                                                                                            HELF THE THE HITTELLI ON THE PART PSARRY TOOKS NEELER IS LELL TO SWILE PVO 152
                                                                                                                                                                                                                                                                                               62 PSNREETQOKSNLELLRISHLIQSKLEPVU 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63 SNREETQOKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                             27 FPTTPL SRLEDNAMLRARRING AVEG CEL
                                                                                                                                                                                                                                                                                                                                                                                 712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRINTS: PROOB36; SOMATOTROPIN.
PROSITE: PSU0338; SOMATOTROPIN_2: 1.
                                                                                                                PRINTS: PRO0836; SOMATOTROPIN.
PROSITE; PS00266; SOMATOTROPIN_1; 1.
PROSITE; PS00338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; AJ4898:1; CAD34012.;:
InterPro; IPR001400; Somatotropin.
Pfam; PF00103; hormone; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26
217
                                                                                                                                                                                                           Local Similarity
es 70; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
Watches 62: Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBL TaxID-5483;
                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                              Q8M174
Q8M174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIGNAL
                                                                                                                                                                 SIGNAL
                                                                                                                                                       Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GHLP6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NIVHU
                                                                                                                                                                                                                                                                                                                                                     Matches
            q
                                                                                                                                                                                                                                                                                              င်
                                                                                                                                                                                                                                                                                                                     Ωp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

<u></u>

RESULT 070615

```
-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 FPTIPLSRLFUNAMLRAHRLHOLAPDTYOEFEEAYIPKEOKYSFLONPOTSLSFSFSIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Delphinus delphis (Saddleback dolphin) (Black sea dolphin).
Eukaryota, Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Cetacea; Odontoceti; Delphinidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Maniou 2., Wallis O.C., Wallis M., "Cloning and characterisation of the GH gene from the common dolphin
                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
MEDLINE 99124455; PULMEd=9924177;
MEDLINE 99124455; PULMEd=9924177;
Lioup is A., Nevo E., Wallis M.;
"Clocing and characterisation of the gene encoding mole rat (Spalax ehrenbergi) growth hormone.";
U. Mol. Endocrinol. 22:29:16(1999).
EMBL: AJ605819; CAA66716.1;
HSSP: POLGA: 1 AX:
HSSP: POLGA: 1 AX:
HSSP: POLGA: 1 AX:
PROGRESS: POLGA: 1 AX:
PROGRESS: POLGA: 1 AX:
PROGRESS: POLGA: 1 AX:
PROGRESS: POLGA: SMALOTEORIN. 1
FROSTE: PSGC386; SMATOTEORIN.2: 1.
                                                                                                               Growth hormone precursor.
Spalax leucodon ehrenbergi (Ehrenberg's mole rat).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Eutelcostomi;
Mammalia; Eutheria; Rodentia; Sciurogoathi; Muridae; Spalacinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65.2%; Score 306.5; DB 11; Length 216; 65.9%; Pred, No. 1.2e-26; ative 13; Mismatches 17; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (JUN-2002) to the EMBL/GenBank/DDBJ databases.
EMBL; AJ492191; CAD37292.1; -.
InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24627 MW. FEABBA523BA0ADFF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-0cT-2002 (TrEMBLrel, 22, Greated)
01-0cT-2002 (TrEMBLrel, 22, Last sequence update)
01-MAR-2003 (TrEMBLrel, 23, Last annotation update)
01-AUG-1998 (TrEMBLrel. 07, Created)
01-AUG-1998 (TrEMBLrel. 07, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GROWTH HORMONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ROWIN HORMONE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam: PF00103; hormone: 1.
PRINTS; PR00836; SOMATOTROPIN.
PROSITE; PS00266; SOMATOTROPIN.]; I
PROSITE; PS00338; SOMATOTROPIN.2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery Match
Best Local Similarity 65.9%
Matches 60: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Growth hormone precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 216
216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26
216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Delphinus delphis)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27 2
216 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                    Nannospalax.
NCBI_FaxID-30637;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID-9728;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE-Liver:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Signal.
SIGNAL
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PAGENTAL SELECTION OF SELECTION
```

```
Rest Local Similarity
Matches 59; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IISSUE-Placenta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                095205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          09JKM4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09JKM4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 15
Q9JKM4
                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AC DE DE OS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ġ
                                                                                            ï
                                                                                                                               2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                              2 FPT:PL.SRLFDNAMLRAHRLHQLAFDTYQEF! :AYTPKEQKYSFLQNPQTSLSFSES:PT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12 : FLT TELL TELLE TELLE TELLE TELLE TELLE TELLE TELLE TELLE TELLE SETTER BS
                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mis musculus (Mouse).
Eukaryota: Metazoa; Chordata: Craniata: Vertebrata: Eutrileostomi:
Mammalia: Eutheria: Rodentia: Sciuroquathi: Muridae: Murinae: Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alluropoda melanojeuca (Giant panda).
Eukaryota: Metazoa; Chordata; Craniata: Vertebrata: Euteleostomi;
Mammalia: Eutheria; Carnivora; Fissipedia: Ursidae; Alluropoda.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nquyen T.N.K., Liebhaber S.A.;
"Mouse Growth Hormone Locus: Nucleotide Sequence and Phylogenetic
                                                                                         ];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -:
                                          64.1%; Score 301.5; UB 6; Length 216; 64.8%; Pred. No. 4.3e-26; Live 14; Mismatches 17; Indels 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Liao M., Zhu M., Zhang A.; "Cloning growth hormone from "Cloning and expression of cDNA encoding growth hormone from Ailuropoda melanoleuca."; Submitted (AUG-2002) to the EMBL/Genhank/DDHJ databases. EMBL, AF540936; AAN77228.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        64.1%; Score 301.5; DB 6; Length 215; 64.8%; Pred. No. 4.3e-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     i7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (AUG-1995) to the EMBL/GenBank/DDBJ databases EMBL: U34362; AAC99988.1; -. HSSP: P01241; 1AXI.
24509 MW; 1EC467A84CCFEB02 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIGNAL 1 26 POTENTIAL.
SEGUENCE 216 AA: 24383 MW: 44EC17EC44BCB056 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                    01-MAR 2003 (Trimmine) 33 Croates)
61 MAR-2003 (Trimmine) 23, East Sequence, poste)
01-MAR-2003 (Trimmine), 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                 14; Mismatches
                                                                                                                                                                                                                         62 PSNREETQOKSNLELLKISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              216 AA
                                                                                                                                                                                                                                                                                                                                                                                 PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001400; Somatotropin.
                                                             Best Local Similarity 64.8%
Matches 59: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 64.8%
Matches 59; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Growth hormone precursor.
                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
216 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEÇIJENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE-Pituitary;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCB1_Tax1D-10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCB1_Tax1D-9646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Growth hormome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Analyses.;
SEQUENCE
                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match
                                                                                                                                                                                                                                                                                                                                                                            QBHYES
                                                                                                                                                                                                                                                                                                                                                                                                      CHRYES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09R2C3
                                                                                                                                                                                                                                                                                                                               RESULT 12
08HYES
10 OBHYES
10 OBHYES
10 OBHYES
10 OBHYES
10 OB MAN
10 OBHYES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09R2C3
                                                                                                                               ò
                                                                                                                                                                          g
                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
```

```
1: :111 (1 11:111 :1'(1 11:1 1 1:11:1) : 11 :1 :1 1:11 :27 FPAMPLSSLESNAVLRAGHAGLAADIYKELERAY!PEGGRYS-10NAQAAFCFSETIPA 85
                                                                                                                                                                                                                                                                                                 2 PPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLONPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 FPTIPLSRLF:NAMLRAHRIHOLAFDTYGEFEBAYIPKEQKYSFLONPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lacroix M.C., Devinoy E., Servely J.L., Puissant C., Kann G.;
"Expression of the growth hormone gene in ovine placenta: detection and cellular localization of the protein.";
Endocrinology 1374886-4892(1996).
EMBL: U49063; AAC46879.1; -.
HSSP; P01241; IAXI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mammalia: Eutheria: Cetarticdactyla: Rummalia: Peccia: Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ovis aries (Sheep).
Eukaryota, Metazoa; Chordata: Crania:a; Vertebrata: Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cavia porcellus (Guinea pig).
Eukaryota: Metazoa: Chordata: Craniata: Vertebrata: Eutrleostomi:
                                                                                                                                                                                                                                            ::
                                                                                                                                                                               Owery Match 63.5%; Score 296.5; UB 11; Length 216; Best Local Similarity 63.7%; Pred. No. 9.4e-26; Matches 58; Conservative 14; Mismutches 18; Indels 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63.3%; Score 297.5; DB 6; Length 204; 64.8%; Pred. No. 1.18-25;
Pfam: PF00103; hormone; 1.
PRINTS; PR00836; SOMATOTROPIN.
PROSTIE: PS00266; SOMATOTROPIN_1; 1.
PROSTIE: PS00338; SOMATOTROPIN_2; 1.
SEQUENCE 216 AA; 24682 MW; FC2A050A02535B18 CHC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      204 AA; 23462 MW; EBBB945189263506 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-FEB-1997 (TrEMBLES), 02, Created)
01-FEB-1997 (TrEMBLES), 02, Last sequence update)
01-MAR-2003 (TrEMBLS 1, 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-001-2000 (TrEMBLrel. 15, Created)
01-001-2000 (TrEMBLrel. 15, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Growth hormone precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      le-25;
es 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    62 PSNREETQOKSNLELLRISTLLTQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.34 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62 PSNREETQQKSNLELLIRISLILLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfan: PF00103; hormone: 1.
PRINTS: PROGR36; SCMATOTROFIN.
PROSTE: PS00266; SCMATOTROPIN. 1: 1
PROSTE: PS00338: SCMATOTROFIN.2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Placental growth hormone (Fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-97050633; PubMed-8895361;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conserva: ive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bovidae: Caprinae: cvis.
NCBI_TaxID=9940;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
```

```
OC Mammalia: Butheria: Rodentia: Hystricognath; Caviidae: Cavia.

NEBLTEAXID-10141:
RN | 11 |
RP | SEQUENCE FROM N.A.

RA Odorico D.M., Fuller P.J., Herington A.C.;
RT Submitted (FEB-2000) to the EMBL/GenHank, OBJ databases.

RI. Submitted (FEB-2000) to the EMBL/GenHank, OBJ databases.

REPST: PRO1441: IAXI.

DR PROSITE: PR00466: SOMATOTROPIN.

DR PROSITE: PS00486: SOMATOTROPIN.

DR PROSITE: PS00486: SOMATOTROPIN.

DR PROSITE: PS00486: SOMATOTROPIN.

RY SIGNAL

FT SIGNAL

SIGNAL

FT SIGNAL

SIGNAL

FT SIGNAL

SIGNAL

FT SIGNAL

FT SIGNAL

SIGNAL

FT SIGNAL

SIGNAL

FT SIGNAL

SOMETHIN SIGNAL

FT SIGNAL

SOMETHIN SIGNAL

FT SIGNAL

SOMETHIN SIGNAL

FT SIGNAL

SOMETHIN SIGNAL

FT SIGNAL

FT SIGNAL

SOMETHIN SIGNAL

FT SIGNAL

FT SIGNAL

SOMETHIN SIGNAL

FT SIGNAL

FT
```

š

q

ر ا ا Search completed: September 15, 2063, 12:64:27 Job time: 35.9427 Secs

us-09-423-100-4.rag

```
Sequence of human
                                                                                                                                                                             September 15, 2003, 11:44:15; Search time 60.4158 Seconds (without alignments) 225.942 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A_Geneseq_19Jun01:•

| SIDSI/gcddata/geneseq/geneseqp=embl/AA1980.DrT:•
| SIDSI/gcddata/geneseq/geneseqp=embl/AA1980.DrT:•
| SIDSI/gcddata/geneseq/geneseqp=embl/AA1981.Dr.:•
| SIDSI/gcddata/geneseqyeneseqp=embl/AA1981.Dr.:•
| SIDSI/gcddata/geneseqyeneseqp=embl/AA1986.DAT:•
| SIDSI/gcddata/geneseqyeneseqp=embl/AA1986.DAT:•
| SIDSI/gcddata/geneseqyeneseqp=embl/AA1986.DAT:•
| SIDSI/gcddata/geneseqyeneseqp=embl/AA1986.DAT:•
| SIDSI/gcgdata/geneseqp-embl/AA1989.DAT:•
| SIDSI/gcgdata/geneseqyeneseqp=embl/AA1990.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA1990.DAT:•
| SIDSI/gcgdata/geneseqyeneseqyenbl/AA1990.DAT:•
| SIDSI/gcgdata/geneseqyeneseqyenbl/AA1990.DAT:•
| SIDSI/gcgdata/geneseqyeneseqyenbl/AA1990.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA1990.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA1990.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA1990.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA1990.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA2002.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA2002.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA2002.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA2003.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA2003.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA2003.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA2003.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA2003.DAT:•
| SIDSI/gcgdata/geneseqyenbl/AA2003.DAT:•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Description
                                                                                                                                                                                                                                                                                                                                                                     1 FVNQHLCGSHLVEALYLVCG.....IVEQCCTSICSLYQLENYCN
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of 61:s satisfying chasen parameters
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1107863 seqs, 158726573 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                              OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length: 0
length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                            US-09-423-100-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.
                                                                                                                                                                                                                                                                                                            Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Searched
                                                                                                                                                                                           Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7 m 4 m 9 r 8 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Result
```

Human insulin. Ho Human insulin prec Human proinsulin p Human proinsulin. Sequence of the 32 Sequence of the 32 Synthetic proinsul AAR84061 AAY42858 AAB12770 AAR48218 AAP20036 AAP40217 AAP50127 AAP50060 100.0 100.0 100.0 100.0 100.

Sequence encoded b Proinsulin protein	fied		Yeast alpha-factor	Synthetic proinsul	Human proinsulin #	Human proinsulin p	Human pro-insulin	Human proinsulin p	Sequence encoded b	Sequence of prepro	Sequence of human	Human preproinsuli	Human preproinsuli	Ruman insulin. Ho		Human proinsulin.	Human proinsulin n	proi	Secretory cell lin	Buman preproinsuli	Human insulin. Ro	MWPSp-MWPmp10-Met-			Human preproinsuli	proinsul	Met	Human Met-Tyr proi	Human Met-Phe prof	Human proinsulin #	Human proinsulin p			Human preproinsuli
AAP61090 AAR32367	AAR07682	AAR33855	AAR20467	AAP90102	AA017830	AAY08004	AAR68898	AAB12773	AAP10042	AAP10053	AAP40309	AAY06608	AAB26765	AAB06144	AAY70366	AAY44367	AAG65677	AAE10337	AAB 55424	AB331590	ABG60634	AAY69788	AAY69787	AAW81856	AAY53589	AAW81857	AAK39574	AAR39575	AAR39576	AA017841	AAY08005	7866	AAY51222	AAY51223
7	Ξ	14	13	10	50	50	5	21	7	~	Ŋ	50	21	23	51	7	??	2.5	7.7	23	?	2	21	50	23	20	7	14	14	50	50	16	21	71
87	88	98	42	<u></u>	96	96	44	97	110	110	110	110	110	110	110	110	110	G []	0:1 1	1.1	110	117	130	121	53	13.	88	88	99 39	9.6	ς; Σ	65	85	66
100.0		0	0		100.0	100.0			100.0	100.0	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.001	100.0	100.0	100.0	100.0	100.0	100.0	58.7	28.7	98.7		58.7		98.5	98.5
463 463	Ş	9	9	9	Θ	463	Ç	463	453	Q.	463	463	463	463	463	463	463	463	463	۲. ن ن	463	463	463	463	453	463	457	457	457	457	457	457	456	456
10	12	13	14	15	16	17	18	19	20		22	23		25	56	27	28	58	30	3.1	32	33	34	35	36	3.7	38	36	40	4 1	4.2	43	4	4.5

ALIGNMENTS

```
Znote. "H or a chemically or enzymatically cleavable AA residue or peptide residue"
                                                                                     Insulin precursor; connecting peptide; diabetes; hormone
                                                                                                                                                   31..65
//abel- connecting peptide
                                                                    Sequence of human insulin precursor.
                                                                                                                       Location/Qualifiers
1..30
       AAP40829 standard; Protein; 86 AA
                                                                                                                                          /label≏ chain B
                                                                                                                                                                              /label- chain A
                                                                                                                                                                                                /label - F-NH2-R
                                                                                                                                                                                                                                                               /label- N-OH
                                          25-MAR-2003 (updated)
03-AUG-1992 (first entry)
                                                                                                                                                                                                                         Disulfide bond
Disulfide bond
Disulfide bond
Modified-site
                                                                                                                                                                                      Modified site
                                                                                                       Homo sapiens
                        AAP40829;
                                                                                                                                                   Pept.ide
                                                                                                                          Key
Region
                                                                                                                                                                      Region
AAP40829
```

ЭH.

Frank

```
DNA sequences encoding insulin precursors of formula 8-99 A, where B and A represent B- and A-chains of insulin respectively, and Pq represents a modified C-peptide or any number of amino acids comprising at least one qipycosylation consensus site, can be inserted into expression vectors which it turn can be used to transform fungal host cells. The fundal ocils are then cultured and the insulin expressed in sect cells on the narvescel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This sequence represents a human insulin precursor comprising insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New chimeric proteins containing human growth hormone tragment, used particularly for the production of human insulin
                                                                                                                                    DNA encoding human insulin precursors - which compiles B- and A-chains linked via amino acid chain contq. 1 or more glycosylation sites, for prepn. of insulin in tungal cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Insulin, precursor, growth hormone, chaperone, intramulecular, folding, conformation, chimeric protein, chavable, recombinant,
                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 46%; DB-17; Lenath 86; 100.0%; Pred, No. 8.4e-44; ive 0; Mismatches 0; Indels (
                                                      Van DEN HONDEL CAMJJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 SLOKRGIVEQUETSICSLYOLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SLOKRGIVEOCCISICSLYOLENYCH 86
                                                                                                                                                                                                       Disclosure: Figure 1: 32pp; English
                                                      Valinger R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ruman insulin precursor, SEQ ID 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 10; Page 29; 46pp; English
   (MEST/) MESTRIC S.
(PLIV ) PLIVA PHARM & CHEM FAB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAY42858 standard; protein; 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98WO-CN00052
                                                                                                   N-PSDB; AAT17830, AAT17831
                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                      Punt PJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI: 1999-610839/52
                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 86; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                production; yield
                                                                                                                                                                                                                                                                                                                                                                          86, AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               W09950302-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31-MAR 1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-OCT 1999.
                                                      Mestric S,
                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAY42858;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gan Z:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAY42858
     aa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ·:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 FUNOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                              The inventors claim a method for the prepo. of an insuiin procursor in which the A-chain and B-chain are joined through a connecting peptide. The connecting peptide joins the A-chain at the amino group of A-1 to the B-chain at the carboxyl group of B-30. The method is pref. for the B-chain at the carboxyl group of B-30. The APAPAB29. The Sos of the connecting jeptides of a number of species are given (see ARAPAB28, ARAPAB29) ARAPAB29. ARAPAB2820 to correct PA field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                 Insulin precursor prodn. from linear S-sulphonate and mercaptan in single step without separate oxidn.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ċ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Insulin; transformation; gene expression; fungi: fungal cell; hormone; A-chain; C-chain; qlycosylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 463; Db.5;
100.0%; Pred. No. 8.4e-43;
Live 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualitiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag= a
/product= Insulin
                                                                                                                                                                                                                                                                                                                 Claim 17; Column 4; 8pp; English,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR84061 standard; Protein; 86
                                                                                            82US-0349397.
80US-0134389.
80US-0210696.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nilarity 100.08;
Conservative
                                                             82US-0349397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  94HR-0000432.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95EP-0001999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                               (ELLE ) LILLY & CO ELL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1..261
                                                                                                                                                                                                                                WPI; 1984-049032/08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match
Best Local Similarity
Matches 86: Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human insulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                            16 - FEB-1982;
27 - MAR-1980;
                                                             16-FEB-1982;
                                                                                                                              28 · NOV - 1980;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22-AUG-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-AUG-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  05-AUG-1994;
US4430266-A
                              07 - FFB - 1984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               03-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EP704527-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
```

AAR84061;

AARB406

ò q ò

ö

.;

us-09-423-100-4.rag

Page

```
precursor can be a component of chimeric proteins which additionally contains an Verminal fragment of chimeric proteins which additionally contains an Neterinal fragment of chimeric protein which additionally contains an Neterinal fragment of him grammone (Malh) and a cleavable peptide linker (AMY4287). The McH portion of the chimeric protein acts as an intramolecular chapero. (IMC) for the insulin of protein acts as an intramolecular chapero. (IMC) for the insulin of protein acts as an intramolecular chapero. (IMC) for the insulin contains a cleaminal Arg residue which enables the MGH portion of the commerciant human insulin via an MGH-proinsulin chimeric protein can provide human insulin via the MGH-proinsulin protein a higher yield of lower necessary procedural steps, and hence resulting in a higher yield of muman insulin with correctly linked cysteine bridges with fower necessary procedural steps, and hence resulting in a higher yield of Imman insulin with the IMC sequences not only protect insulin sequences from intracclular degradation precursor, facilitate the solubility of the fusion protein and decrease the intermolecular interactions among the fusion proteins, thus allowing folding of the fused insulin the sequences of cyanoger bromide cleavage, oxidative suphitolysis and related contains. The procedural steps of cyanoger bromide cleavage, oxidative suphitolysis and related procedural contentrations of purification steps can thus be climinated and related contentrations.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PEARDIGVEGVET.GGGPGAGSLUPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Numan: insulin-like growth factor I: IGF-I; proinsulin; insulin; mandunt. Insulin-like growth factor binding protein; Insulin: Insulin-like growth factor binding protein; Insulinsor; IGFBP-I: IGFBP-I: antidiabetic: newroprohedrive; anorectic; tranquillisor; vulnerary; anorectic; cardiant; nephrotropic; dermatchodical; antiHIV; antivial; hyperqlycaemia; obesity; lung discase; alonemerulonophritis; interestitial nephritis; Turner's syndrome; Laroy's syndrome; short stature; increased fat mass-to-lean ratio; immunological disorder; periphral neuropathy; multiple solerosh; muschlar dystrophy; catabolic state; trauma; wounding; intertion; HIV; skin disorder; han immunodeficiency virus; diabetes; heart dysfunction;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          :
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 46x; DB 20; Leaqth 86; 100.0%; Pred, No. 8 4e-43; ilve 0; Mismai 2xx 0; indels o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human proinsulin protein sequence SEQ 1D NO:2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 kidney disorder; whole body growth disorder.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : FVNQHLCGSHLVEALYLVCGERGFFYTFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 FVNQHLCGSHLVEALYLVCGERGFFYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 SUCKRGIVEOCCISICSLYQLENYON 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 SLOKRGIVEQCCTSICSLYQLENYCH R6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAH12770 standard; protein; 86 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          05-JAN-2000; 2000WO-US00151.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0115010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22 NoV-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity 100. 
Hes 86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dubaquie Y, Lowman H;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GETH ) GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2000:465955/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HG AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        06 - JAN - 1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Momo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13 - JUL - 2050.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB: 2770;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAB12770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
The present invention describes an insulin-like growth factor (16F)-1 variant (1), where an amine acid at position 3, 4, 5, 7, 10, 14, 17, 23, 24, 44 or 45, optionally in combination with an amine acid at position 12 and/or 16 of the native summin 1GF1 sequence, is replaced with an alanine, alycine, or a serine residue. The residue at position 7 may be replaced by any amine acid. (1) can have antidabetic, cardiant, oneuroprotective, anorectic, tranquilliser, vulnerary, anorectic, cephrotropic, dermatological, antiHIV and antiviral activities. The IGF-1 mutants are used in any methods where 1GFs or insulin are used, e.g. in treating hyperdycaemia, obesity-related, neurological, cardiac, renal, immunological, and anabolic disorders. These disorders include lung diseases, allomerinicomphitis, interstital nephritis. Turner's syndrome, farous short stature, increased lat mass to-lear ratios, increasing manuodicitoricus virus (HVV), wounds, skin also be selected.

They can also be used for increasing seriam and tisses eivels of biological active 10st or insulin a mammal. The IGF-1 mutants improve the native human pronsulin present masser.

They can also be used for insulin a mammal. The IGF-1 mutants improve the native human pronsulin present.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 FVNQHL/CGSHLVEALYL/VYGEKGFFYTPKTHREAEDL/QVGQVELGCCPGAGSL/QPLALEG | 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1) FULLIFICATION TO THE FORT FOR THE FULL FULLIFICATION OF THE FULL FOR THE FORT FOR FOR FORT FOR FOR FORT FOR FOR FORT FOR FOR FORT FOR FOR FORT FOR FOR FORT FOR FO
                          Novel insuling like growth factor (IGF) I mutants that selectively bind to IGF binding protein (IGFBP)-1 or (GFBP-3, used to improve the half-lives of IGF-1 and insuling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Antirheumatic: antiarthritic; ostoopathic; cartilage disorder; insulin-like growth factor; IGF, binding protein; IGFRP; rheumatoid arthritis; osteomithritis; proinsulin; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 46x; DB 21;
100.0%; Pred. No. 8.46-43;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 SEQKRGIVEGOTTSICSLYQLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 SLOKRGIVEOPCISICSLYQLENYON 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dubaquie Y, Filvaroff EH, Lowman HB:
                                                                                                                                                                      Disclosure; Page 44; 48pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAM48218 standard; Protein; 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16-MAY-2000; 2000US-204490P
15-NOV-2000; 2000US-248985P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .6-MAY-2001; 2001WO-US15904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-MAR-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GETH ) GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match
Best Scoal Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            86 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human proinsulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WC200187323-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Home sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-NOV-2601.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAM48218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAM48218
q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
```

```
WPI: 1984-076793/12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-PSDB: AAN40179.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hershberger CL,
                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-SEP 1983;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-SEP-1982;
C5-SEP 1984;
                                                                                                                                                                                                                                                25-MAR-2003
12-FEB-1992
                                                                                                                                                                                                                                                                                                                                                                                                                   GB2126237-A
                                                                                                                                                                                                                                                                                                                                                                                                                                      21-MAR 1984
                                                                                                                                                                                                                              AAP46217;
                                          Sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              activity
                                                                                                                                                                                                                                                                                                                                     Key
Region
                                                                                                                                                                                                                                                                                                                                                                   Region
                                                                                                                                                                                                                                                                                                                                                                                       Region
                                                                                                                                                                                        RESULT 7
    x 2 2 x 8
                                                                                                                                                         Q
C
                                                                                                                                                                                                                              ò
                                                                                                                    3
                                                                                                                                        ं
                                                                                                                                                                                                                                                0
                                                                                            The present invention relates to a method for treating cartilage disorders. The method comprises contacting cartilage with an active agent such as insulin-like growth factor (IGF 1) analog with a binding alfinity preference for GF binding protein-3 (IGFBP-3) over IGFBP-1, an IGF-1 analog with a binding affinity preference for IGFBP-1 over IGFBP-3, or a IGFBP displacer peptide that prevents the interaction of IGF with an IGF-B and does not bind to human IGF receptor. The method is useful for IT-reating cartilate disorders (CD), including decementive CD, urticalar CD such as themstoid arthritis and osteoarthitis. The present sequence is human proinsulin, which was used to illustrate the invention.
                                                                                                                                                                                                                                                             Treating cartilage disorders including and ilage damage by injury or degenerative cartilagenous disorders, by contacting cartilage with insuling like growth factor analog with altered affinity for IGF-binding
                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Plasmid cloning vehicles - useful for transforming bacterial hosts to produce eukaryotic polypeptide(s).
                                                                                                                                                                                                                            Length 86;
                                                                                                                                                                                                                          100.0%; Score 463, 08.23; (10.10.0%; Pred. No. 4e-43; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                      61 STUKRGIVEOCCISICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                 SLOKKGIVEQCCTSICSLYQLENYCN 86
                                                                            Disclosure: Fig 16; 136pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure: Fig 27; 114pp; English
                                                                                                                                                                                                                                                                                                                                                                           Ž
                                                                                                                                                                                                                                                                                                                                                                         AAP29036 standard: Protein; 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI: 1982-59775E/29 (59775E)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         810S-0286070.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              810S-0222019.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82US-0222010.
82US-0354287.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (CYNY-) STATE UNIV NEW YORK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81EP-0306190
                                                                                                                                                                                                                                                                                                                                                                                                                (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Inouye M. Nakamura K;
        WPI: 2602-082942/11.
                                                                                                                                                                                                                                  Local Similarity
wes 86: Conserv
                                                                                                                                                                                                        HF AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                             Human proinsalts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N PSDB; AAN20041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23-30L-1981;
02-JAN-1982;
03-MAR-1982;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homes sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31 DEC-1981;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-JAN-1981;
                                                                                                                                                                                                                                                                                                                                                                                                               25 - MAR - 2003
22 JUL - 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14 - 301, 1982
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Proinsalin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EP55942 A.
                                                                                                                                                                                                                                                                                                                                                                                            AAF 200 16;
                                                          proteins
                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                      RESULT 6
                                                                                                                                                                                                                                                                                                                                                                AAP20036
qn
                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                        ag
                                                                                                                                                                                                                                                                                                                                                                        Š
```

```
ö
                                                                                                                                                                                                                                                                            2 FVNQHLGGSHLVEALYLVGGERGFFYT/KTRREAEDLQVGQVELGGGFGAGSLQPLALEG 51
                                                                                                                                                                                                                                         1 FVNOHLOGSHLVEALYLVCGERGFFYTPKTRHEAEDJOVGOVELGGGPGAGSLOPLALEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          plasmid pTh alpha 1 was constructed by inserting a synthesised gene for thymosin alpha 1 (AAN40178) into plasmid pBR322. It is used for the construction of pTrp24. The inventors claim a method for protecting bacteria from phage infection - by transformation with cloning vector cong. seqment with restriction and modification activity. Produ. of plasmid pPR 26 or pPR27 which uses pTrp24; and produ. of plasmid pPR29 which uses a synthetic gene coding for the 32 N-terminal AAS of proinsulin (see ANN40179).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protecting bacteria from phage infection - by transformation with cloning vector contq. segment with restriction and modification
                                                                                                                                   Length 87;
                                                                                                                                                                                       Indels
                                                                                                                                100.0%; Score 463; DB 3; 100.0%; Pred. No. 8.5e 43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence of the 32 N terminal AAs of proinsulin.
The sequence comprises human proinsulin. (Updated on 25-MAR-2003 to correct Pk field.)
                                                                                                                                                                                    C: Mismarches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mormone: cloning vector; phage resistant
                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2..3l
/label- B-chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /label- A-chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /label- C-chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             H.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example: Fiq 10; 28pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rostock PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAP40217 Standard; Profein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           82US-0414290
84US-0647338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83GB-0023468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (updated)
(tirst entry)
                                                                                                                             Ouery Match
Best Local Similarity 100.0
Matches 86, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (ELIL ) LILLY & CO ELL.
```

us-09-423-100-4.rag

```
AARS CO.
                                    Sednouce
                                                       Owery Match.
                                                                                                                                                                                                                                                                                                                                          Region
                                                                                                                                                                                                                                                                                                                                                             Region
                                                                                                                                                                                                                                                                                                                                                                                Region
                                                                        Matches
                                                                                                                                                                              RESULT 3
                                                                                                                                                                                       AAPSOOSE
SSSXS
                                                                                                                                5
                                                                                            ŝ
                                                                                                            균
                                                                                                                                                  23
                                                                                                                                                                                                         Ġ
                                                          FYNOHLOGSHLVEALYLVCGERGFFYTPKTRREAEDLOVDOVELGGODGAGSLOFLALLEG 63
LEGELLILLELLELLEGELLEGERTET LITTELLEGELLEGGODGAGSLOFLALLEGEL
FYNOHLOGSHLVEALYLVCGERGFFYTPKTRREAEDLOVGOVGLGGOPGAGSLOFLALEG 61
                                           ot caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The inventors claim a process for proparing selectable and autonomously replicating recombinant DNA expression vectors which comprise 1) a transcriptional and translational activating sequence which is in the reading frame of a nucleotide sequence which codes for a peptide or polypeptide; 2) a translational stop signal; 3) a translational start signal which is in the reading frame of a nucleotide sequence that codes for a functional polypeptide; and 4) an additional translational stop signal. The peptide or polypeptide coding sequence codes for 2-20 AAs, esp. AAS50122-PS0125. The functional polypeptide is esp. growth hormone, human insulin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           replication and on transcription generating polycistronic mrna
                       : Score 463; DB 5; Length 87;
Pred. No. 8.5e-43;
0; Mismatches D; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  with autonomous
                                                                                                                                                                                                                                                             Selectable vector; autonomously replicating vector;
                                                                                                                                                                                                                                           Sequence of the 32 Noterminal AAs of projusuling
                                                                                                61 SLUKRGIVFUCCTSICSLYQLENYON 86
                                                                                                          SCORMSTVEOCCTS/CSLYQLENYON 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New recombinant DNA expression vector
                                                                                                                                                                                                                                                                                                                    Location/Vualitiers
                                                                                                                                                                 AAPS0127 Standard: Protein; 87 AA
                                                                                                                                                                                                                                                                                                                                                32..66
/label- B chain
67..87
/label- A chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example: Fig 14: 118pp; English.
                                                                                                                                                                                                                                                                                                                                2..31
Zlabel Achain
                       . 80
                       100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    84US-0586542.
85CN-0101555.
                                                                                                                                                                                                                                                                                                                                                                                                                                   85EP-0301469
                                                                                                                                                                                                                          (A1199 18111)
                                         86: Conservative
                                                                                                                                                                                                      (pared ho)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (FILL) LILLY & CO ELI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Schoner B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI: 1985 224921/37.
                                Best Local Similarity
                                                                                                                                                                                                                                                                       expression vector
    87 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-PSDB; AANSO152.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     D6-MAR 1484;
                                                                                                                                                                                                    25 MAR 2 0.3
16 AUG 2002
                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                   04 - MAR - 1985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              APR 3985;
                                                                                                                                                                                                                                                                                                                                                                                                                 11 SEP 1985
                                                                                                                                                                                                                        SEC 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     xÌ
                                                                                                                                                                                                                                                                                                                                                                                              EP1545397A
                                                                                                                                                                                                                                                                                                Synthetic.
                                                                                                                                                                                   AARTOLL 27.
     Sequence
                       Query Maten
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Seboner
                                                                                                                                                                                                                                                                                                                               Region
                                                                                                                                                                                                                                                                                                                                                 Region
                                                                                                                                                                                                                                                                                                                                                                    Region
                                        dat.ches
                                                                                                                                              RESULT 8
                                                                                                                                                       AAP50127
ID AAF
XX
                                                                                               ò
                                                                                                                  a
                                                                                                                                                                                   3
```

```
0
                                                                                                                                                                                                                                  09
                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                           1. FVNOHLOGSHI VEALYLVOGEKGFFYTPKT KREAEHJUJVOQVELIGGGPGAGSLQPLALEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          esp.
                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The synthetic proinsulin gene is expressed in a new selectable and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New selectable and autonomously replicating DNA expression vector useful in producing proteinaceous granules in cell transformants.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             autonomously replicating recombinant DNA expression vector comprising a runaway replicon and a transcriptional and translational activating sequence in the reading frame of the profisulin coding sequence, the sequence contq. a translational stop stopal signal, host cells contq. the vector, which is esp. plasmid pC2103, are cultured, and profisulin is produced as a highly homogeneous species of proteinaceous quantum. The granule can be
                                                                                                                                                                                    0
                                                                                                                                      Score 46%; DB 6; Length 87; Pred. No. 8.5e-4%;
                                                                                                                                                                                    Indels
interferon and fuma, tissue plasminogen activator. (Updated on 16-AUG-2002 to add missing us field.) (Updated on 25-MAR-2603 to correct PA rield.)
                                                                                                                                                                                      ö
                                                                                                                                                                                    0; Misgratedes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Professible, Vectory proteinaceous gradule;
                                                                                                                                        100.0%; Score 46%;
                                                                                                                                                                                                                                                                                                                          61 SLOKESIVEUCCISICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                HTTL::!IIII:
SLQKRSIVEQCOTSICSLYQLENYCN 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Schoner BE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Fig. 14; 115pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualitiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31..65
/label=C chain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66..86
Zlabel*A chain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAF 53,600 Standards proteins 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alabet B chain.
                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840S - 0634920.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   84US-0586582.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85EP-0301468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               850S 0697090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (:irst. entry)
                                                                                                                                                                                    86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Schiner RG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (EDIL) LILLY & CO EDI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (appeared)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (payedd)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic proinsulie.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WP1: 1985-265090/43.
                                                                                                                                                              Social Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB; AANSOOB2
                                                                                            87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Home sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     04 - MAR-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06 - MAR - 1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31-JAN-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25 MAR-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16 - AUG · 2502
11 NOV - 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23 OCT-1985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hsinnd HM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EP159123-A.
```

```
Synthetic.
                                                                                                                                                                                                                                                              AAR32467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Andy R.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                              ò
                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ें
                                                                                                                                                                                                                                          ;
;
                                                                                                                                                                                                                                                                       1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREARDLQVGQVELGGGRGAGSLQVLALEG 60
                                                                                                                                                                                                                                                                                                The inventors claim new recombinant plasmids contg. a DNA sequence encoding a polypeptide, which is toreign to E.coli, in reading phase with a DNA SQ, coding for at least one functional fragment derived from an outer membrane lipoprotein gene of E.coli. The foreign gene may be for human insulin. The lipoprotein gene functional fragment may be the promoter, the 5'-UTR, the 3'-UTR or the transcription termination signal provided that it includes at least the promoter.
                                                                                                                                                                                                                                            Sdec
readily isolated from cell lysates and is stable on washing with urea or detergent solns, at low concns. The granule contains at least 50% of proinsulin and all isolation operations are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Recombinant plasmid, E.coli expression · ctor, secretion vector.
                                                                                                                                                                                                                                        :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence encoded by the structural gene for human proinsulin.
                                                                                                                                                                                                  Lengt!, 87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New recombinant plasmid(s) - contg. DNA sequences encoding exogenous polypeptide and outer membrane protein of E coli
                                                                                                                                                                                                                                        Indels
                                                                                   (Updated on 16-AUG-2002 to add missing OS field.) (Opdated on 25-MAR-2003 to correct PA fivid.)
                                                                                                                                                                                                                                        ..
o
                                                                                                                                                                                             c Score 463; DB 6;
pred: No. 8.5e-43;
d) Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                  GLITTLE THE THE TELL THE TELL STOKES TWENCHEST STOKES TWENCHEST STOKES TWENCHEST STOKES THE TELL THE T
                                                                                                                                                                                                                                                                                                                                                           61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAP61090 standard; Protein; 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Example: Fig 27; 44pp; English.
                                                                                                                                                                                             100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                82US-0354287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           82US-0354287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               810S-0222010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81US-0286070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28 FEB 1992 (first entry)
                                                                                                                                                                                         Query Match
Best Local Similarity 100.(
Matches 86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (UYNY-) UNIV OF NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Inouye M. Nakamura K:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match
Best Local Similarity
Thes 86; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1986 331802/50.
                                                                                                                                                87 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     87 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-PSDB; AAN60872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              03 - MAR-1982;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-MAR-1982;
02-JAN-1981;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23-JUL-1981;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US4624926-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25-NOV 1986
                                                               simplified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAP61090.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8888888%8
                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                 a
```

ö

Gaps

..

Indels

ó.

.:

100.08; illarity 100.08; Conservative 0

Score 463; UB 7; Length 87; Pred. No. 8.5e-43; Mismatches , 0; Indels

1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60

```
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 FVNQHLGGSHLVEALYLVGGERGFFYTPKTRREAEDLOVGOVELGGGPGAGSLQPLALEG 60
61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This sequence represents human proinsilin and was decoded from the sequences given in AAQ3696-7001. The chak fragment ciding for proinsulin was inserted into plasmid vector puttle and diseased with Kpn1 and Hudili. This resulted in the formation of the vector pplns. A fragment encoding amino acids 1-73 of CAI (see AAQ37002) was inserted into pplns to give a plasmid which contained DNA sequences which coded for amino acids 1-73 of CAI and amino acid linker sequence and human proinsulin. This plasmid, p.C.CAT proinsulin, could be used in the formation of insulin analogues which may be used in the treatment of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 FVNQHLGGSHLVEALYLV ERGFFYTPKTRKEAEULQVGQVELGGGGPGAGSLQPLALEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                             Human: proinsulin, vector; pUC19; pPINS, CA1; pUCCAT proinsulin; insulin; analogue; type 1; type 1; dibteres.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New hepato selective and peripheral selective human insulin analogues - and their corresp. DNA, for treatment of type I and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 463; DB 14; Lengtl. 87; Pred. No. 8,5e-43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   types 1 and II diabotes. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     U; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 463; 100.0%; Pred. No. 8
                                                                      86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 SLOKRGIVEQCCTSICSLYQLENYCN
                                                                    61 SLOKRGIVEOCCISICSLYOLENYCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Disclosure: Fig 2b; 58pp; English.
                                                                                                                                                                                                                                AAR32367 standard; Protein; 87 AA
                                                                                                                                                                                                                                                                                                                                                                                               Proinsulin protein sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         92WO:US06451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       91US-0741938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92US-0918953
                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity 100.
es 86; Conservative
                                                                                                                                                                                                                                                                                                                                (updated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Larson ER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1993-076530/09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (PF12 ) PF1ZER INC. (SCIO+) SCIOS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB: AAQ37003.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              type II diabetes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W09303174-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31-JUL-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-AUG-1991;
                                                                                                                                                                                                                                                                                                                         25-MAR 2003
18-JUN-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-JUL-1592;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-FEH-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
RESULT 13
AAR33855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR20467
                            ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                               human processulin connecting peptide and natural human insulin A-
chain. Dipeptide removal is carefully controlled to obtain the
desired prod. Without further degradation occurring, irrespective
of whether the next dipeptide in the sequence defines a cathepsin
                                                                                                                                                                                                                                                                                                                                                                                                             This modified human insulin precursor comprises an N-terminal infilialing dipeptide, chosen from Met-Tyr or Met-Arg, which does not define a cathepsis C dipeptide removal stop point. This dipeptide is linked to the natural human insulin B-chain, natural
                                                                                                                                                                                                                                                                                                                                                                     Human insulin precursor - contg. Met-Ty: or Met-arg initiating dispeptide for controlled removal by cathepsin C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 88;
                                                                                                                                                                             /label-bative human insulin B chain
33..67
/label-natural connection peptide of human
proinsulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                             Zlabel-N-terminal instituting dipeptide
                                                                                                                                                                                                                                                                                                                                   McDonough JP;
                                                                                                                                                                                                                68..88
/label-native human msulin A-chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 463; DB 11;
Pred, No. 8.6e-43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (Updated on 09-JAN-2003 to add missing (S field.) (Updated on 25-MAR-2003 to correct PA field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 SLOKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SLOKEGIVEQCCTSICSLYQLENYCN 88
                                                                                                                                                                                                                                                                                                                                  Mackellar WC,
                                                                                                       Human insulin precursor; cathepsin C.
                                                                                                                                            Location/Qualifiers
                AAR07682 standard; protein; 88 AA.
                                                                                     Modified human insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                              Disclosure: page 3: 8pp: English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
100.0%;
                                                                                                                                                                                                                                                                             90EP-030489C.
                                                                                                                                                                                                                                                                                               89US-0349472.
                                                   (updated)
(updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                 Furman TC,
                                                                                                                                                                                                                                                                                                                (FLIL) LILLY & CO ELI.
                                                                                                                                                                                                                                                                                                                                                  WPI: 1990-343372/46.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
Matches 86: Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    stop point.
                                                                                                                                                                                                                                                                             04 - MAY - 1990;
                                                                                                                                                                                                                                                                                               09-MAY-1989;
                                                                                                                           Homo sapiens
                                                   25-MAR-2003
                                                             09-JAN-2003
                                                                     13-FEB-1991
                                                                                                                                                                                                                                                           14-NOV-1990
                                                                                                                                                                                                                                                                                                                                 Booker GW,
                                                                                                                                                                                                                                        EP397420 A.
                                 AAR07682;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                   Pept ide
                                                                                                                                                                     Peptide
                                                                                                                                                                                       ept ide
                                                                                                                                                                                                               Pept.ide
RESULT 12
         AAR07682
                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRREAFDLØVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This sequence represents an analogue of native human proinsulin (hpI). The DNA encoding this sequence was used in the construction of the expression vector of the invention. The coding region of the hpI gene was synthesised and was cloned into the expression plasmid pC2R1265 (see also AAQ38307). Expression of this gene lead to the inclusion of an extra amino acid (Arg) in the second position from the N-terminal of mature hpI. The extra amino acid provides increased expression immunological effects when used in humars. (Updated on 25-MAR-2003 to correct PN lield.)
                                                                                                                                                                                             Proinsulin; hpi; native; pCZR126S; expression vector; E. coli; human; expression; immunological effect.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 463; DB 14: Length 88; 100.0%; Pred. No. 9.6e 43; ive 0; Mismatches 6; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Expression of low molecular wt. polypeptide(s) e.g. insulingrowth factor I - by expressing as deriv, with N-terminal amino acid to provide increased expression levels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure: Page 21-22; 40pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Å.
AAR33855 standard; Protein; 88 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR20467 standard; Protein; 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.08;
                                                                                                                                                                                                                                                                                                                                                                                              92EP-0358601.
                                                                                                                                                                                                                                                                                                                                                                                                                                        9105-0764655
                                                                                        (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 100.0
***rhes 86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (ELIL ) LILLY & CO ELI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI: 1993-102806/13.
N-PSDB: AAQ38310.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                        24-SEP 1991;
                                                                                                                                                                                                                                                                                                                                                                                              22-SEP-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Belagaje RM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25-MAR-2003
21-APR-1992
                                                                                    25-MAR-2003
                                                                                                                                                                                                                                                                                                                                                    42 MAR 1993.
                                                                                                           19-JUL-1993
                                                                                                                                                                                                                                                                                                          EP534705-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR20467;
                                          AAR33855;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0 X 2 X 5 5 5 X
```

8 Page

```
The proinsulin is expressed to Sacchatomyres rerevisiae AB163.1. It is encoded by a synthetic quae (see AAN96279). The 3 consecutive peptides are proinsulin chains B, C and A resp. The regions are
                                                                                                                                                                                                                                                                                                                                                                                                                                               Expression and secretion of heterologous proteins in yeast - using truncated a-factor leader sequence coutq. signal peptide and glycosylation site.
                                                                                                                                     "dibasic processing site"
                                                                  "dibasic processing site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dibasic processing sites.
(Updated on 25-MAR 2003 to correct P. (Teld.)
                                                                                                                71..72
/note= "dibasic processing s
73..93
/note= "proinsulin chain A"
                                    *proinsulin chain B*
                                                                                                  "proinsulin chain C"
       Location/Qualitiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure: fig 1: Z2pp: English
                                                                                                                                                                                                                                                                   88EP 0312306
                                                                                                                                                                                                                                                                                                 870S-0139682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 100.
Matches 86; Conservative
                      8..37
/note-
                                                                  /note-
38...72
                                                    38, 39
                                                                                                   /note-
                                                                                                                                                                                                                                                                                                                                 CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                 1989-208266/29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              93 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB; AAN90279
                                                                                                                                                                                                                                                                                                                                                                  Tekampolso P;
                                                                                                                                                                                                                                                                                                 3C-DEC 1987;
                                                                                                                                                                                                                                                                 23-DEC:1988;
                                                                                                                                                                                                                                  19-531.-1989
                                                                                                                                                                                                  EP324274-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
       Key
Peptide
                                                                                    Pept i de
                                                                                                                                                     Pept ide
                                                    Region
                                                                                                                   Region
     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ें
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTEREAEDLOVGOVELGGGPGAGSLOPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The fusion product is encoded by a synthalic sequence having at its 5'-end a modification of the 3'-end of the naturally occurring alpha-factor secretory leader and processing signal sequence. Where there did Ala pairs have been deleted. A plasmid containing the synthetic prolingulin coding sequence was used to transform kexzmutant yeast strains in the presence of absence of the cloned KEXZ gene. Post translational processing of --insulin into peptides only wecurred in yeast transformed to 8.3. plus. See also AAQ20545. (Updated on 25-MAR-2003 to correct PA 1.eid.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                            BCA-5; yeast preferred codons; post-translational processing; insuiin; endopeptidase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 463 DB 13; Length 92; 100.0%; Pred. No 96 43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Novel DNA for endo:peptidase prodn. - useful for in vivo or
Yeast alpha-factor signal-human proinsulin fusion product.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             U; Indels
                                                                                                                              /note= "signal-proinsulin junction"
37..38
                                                                                                                                                                                                                                                                                                                                                                                3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismate ve
                                                                                                                                                                                                                                                                                                                                                                            Brake AJ, Blair LC, Julius D, Thorner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 SLOKRGIVEOCCTSICSLYQLENYCN 86
                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               witto processing of poly:peptide(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 1: Fig 1: 16pp; English.
                                                                                                                                                                                                                                                              88US-0183252
                                                                                                                                                                                                                                                                                             840S-0523308
880S-0183252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity 100.0
Matches 86: Conservative
                                                                                                                                                                                                                                                                                                                                             (REGC ) CNIV CALLEGRAIA.
                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1992-032671/04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                               N PSDB; AA020543
                                                                                                                                Cleavage site
                                                                                                                                                               Cleavage site
                                                                                                                                                                                                                                                              08-APR-1988;
                                                                                                                                                                                                                                                                                            21-JUN-1984;
08 APR-1984;
                                                                                                                                                                                             USS077204-A.
                                                                                                                                                                                                                              31 - DEC - 1991
                                                                                Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
```

```
90
                                                              67
                                          100.0%; Score 463; DB 10; Length 93; 100.0%; Pred. No. 9.1er43; rive 0; Mismatches 6; Indels 1
                                                                                                                                        completed: September 15, 2003, 12:00:58
No.: 61.4158 sees
                                                                                    Search com
```

STOKKSTVEQCCTSTCSLYQLENYCN 92

g ò q

ŝ

AAP90102 standard; protein; 93 AA

RESULT 15

Proinsulin: synthetic gene: yeast

Homo sapiens

Synthetic proinsulin.

(first entry)

01-NOV-1989 25-MAR-2003

AAP90102
11D AAP9
11D

AAP90102;

(updated)

```
; ORGANISM: Homo sapiens US-09-723-981-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-723 981-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-477-924-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 2, Appli
Sequence 2, Appli
Sequence 1, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 2, Appli
Sequence 6, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Appli
Appli
Appli
Appli
Appli
Appli
Appli
                                                                                                                                  0 ; Search time 19,7276 Seconds (without alignments) 184.449 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is delived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 43,
Sequence 6, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 4,
                                                                                                                                                                                                                                                                          98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                       US-09-423-100-4
463
1 F NOHLCGSHLVEALYLVCG.....IVEOCCTSICSLYOLENYCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1: /cgn2_6/ptodata/1/iaa/5A_CCMB.pep:*
2: /cqn2_6/ptodata/1/iaa/5B_COMB.pep:*
3: /cqn2_6/ptodata/1/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/1/iaa/6B_CCMB.pep:*
4: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
4: /cqn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
GenCore version 5.1.6
Copyright (c) 1993 - 2003 :cmpugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1-09-386- 1-14-5
1-08-389-4-7-7
1-08-030-731A-43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying the set parameters
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US 09-723-381-2
US 09-721-896-2
US-09-878 -80-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-508-664-15
US-08-508-664-16
US-07-918--53-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US -09 - 280 - 030 - 63
US -09 - 280 - 030 - 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9-40--660-60-SE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9-208-660-60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-69-477-924-2
                                                                                                                                                                                                                                                                                                                                                                                    328717 seqs, 42310858 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                     September 15, 2003, 11:57:40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                           OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US - 08 - 081
US - 09 - 134
US - 09 - 386 -
                                                                                                                                                                                                                                                                                                                   BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Issued_Patents_AA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Minimum DB seq length: 0
Maximum DB seq length: 2006000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0
100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      988.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 88.7 4 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   91008
                                                                                                                                                                                                                              Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                            Sedneuce:
                                                                                                                                                                                                                                                                                                                                                                                      Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Database
                                                                                                                                         Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Result
```

```
0;
                                                                                                              Application of Applic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 FVNQHLCGSHLVFALYLVCGERGFFYTEKTRRBAFDLQVGQVELGGGRGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                            Sequence 7
Sequence 1
Sequence 7
                                                                                                                                                                                              Sequence 1
Sequence 3
Sequence 6
Sequence 1
Sequence 2
Sequence 6
Sequence 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oucry Match 100.0%; Score 463; DB 4; Length 86; Best Local Similarity 100.0%; Pred. No. 1.5e-47; Matches 86; Conservative 0; Mismatches 0; Indels
                                                                                                     US-09-099-307-11
US-09-099-307-11
US-08-081-988A-3
US-08-981-988A-3
US-08-981-988A-2
US-08-981-988A-2
US-08-981-988A-2
US-08-981-988A-3
US-08-981-988A-7
US-08-981-988A-7
US-09-201-227A-4
US-09-201-227A-4
US-09-201-227A-4
US-09-981-988A-4
US-09-201-227A-4
US-09-981-988A-4
US-09-201-227A-4
US-09-981-988A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Dubaguie, yves
APPLICANT: Dubaguie, yves
APPLICANT: Lowman, Henry
ITILE OF INVENTION FROTEIN VARIANTS
FILE REFERENCE: P1712R1
CURRENT APPLICATION NUMBER: US/09/723,981
CURRENT FILING DATE: 2000-11-28
PRIOR PPLICATION NUMBER: 09/477,923
PRIOR FILING DATE: 2000-01-05
NUMBER OF SEQ ID NOS: 6
LENGTH: 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALTGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Dubaquie, Yves
APPLICANT: Dubaquie, Yves
APPLICANT: Lowman, Henry
TITLE OF INVENTION: PROTEIN VARIANTS
FILE REPERENCE: 17112R1-1
CURRENT APPLICATION NUMBER: US/09/477,924
CURRENT FILING DATE: 2000-031-05
NUMBER OF SEO ID NOS: 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CS-09-477-924-2
; Sequence 2, Application US/09477924
; Patent No. 6403764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; Sequence 2, Application CS/09723981
; Patent No. 6506874
ORGANISM: Homo sapiens
```

```
ATTORNEY/AGENT INFORMATION:
NAME: Leslie McDonell
REGISTRATION NUMBER: 34,872
REFERENCE/LOCKET NUMBER: 02481.1600 00000
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 SLOKRGIVEOCCTSICSLYQLENYCN 86
                                                                                                                 APPLICATION NUMBER: US/09/134.836
                                                                                                                                                                                                         US-09-134-836-4
; Sequence 4, Application US/09134836
; Patent No. 5986048
                                                                                                                                                                                                                                                                                                                                                                                                                             1300 Listroet, N.W. Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Escherichia col:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (202) 408 4400 INFORMATION FOR SEO ID NO: 4: SEQUENCE CHARACTERISTICS: LENGTH: 96 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: protein ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sindie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 20005 3315
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: Protein
                                                                                                                                                                                                                                                                                                                                                                                                                Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: 1..96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
STREET: 130
CITY: Washi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-134 836-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                        qq
                                                                                               ò
                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/09878380

Fatent No. 6534281

GENERAL INFERMATION

APPLICANT: FUJIC IO Inc.

APPLICANT: KURANO, YOShihiro

APPLICANT: KURANO, YOShihiro

APPLICANT: MISTZONO, ISAO

TITLE OF INVENTIONS IMmunoassay For Measuring Homan C-Peptide and Kit Therefor FILLE REFERENTE: 0760-02318

FILLE REFERENTE: 0760-02318

CURRENT APPLICATION NUMBER: US/09/878, 480

CURRENT FILLNO DATE: 2001-06-12

PRICH FILLNO DATE: 2000-06-12

NUMBER OF SEO ID NOS: 2

NUMBER OF SEO ID NOS: 2

SOFTWARE: PATENTIN VEFSION 3.1
                                                                    1 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLØVGOVELGGGPGAGSLQPLALEG 60
                                                                                         1 FVNUHLCGSHLVEALYLVCGERGFFYTPKTR (FAEDLOVGOVELGGGGPGAGSLOF) ALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 FVNOHLGGSHLVEALYLVGGERGFFYTPRT1 - EAEDLQVGQVELGGGFGAGSLQPLALEG 60
                                       Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sare
                                       0
100.0%; Score 463; DB 4; Length 86; 100.0%; Pred. No. 1.5e-47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Score 463: DH 4; Length 86: 100.0%; Pred. No. .5e-47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 463; DB 4; Length 86; Pred. No. 1.5e-47;
                                       0: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0: Mismatches
                                                                                                                                                                                                                                                                                                                                               APPLICANT: FORMMEN, HORY
TITLE OF INVENTION: PROTEIN VARIANTS
FILE REFERENCE: P.712R1
CURRENT APPLICATION NUMBER: US/U9/723,899-
CURRENT FILLNE LATE: 2000-11-28
PRIOR APPLICATION NUMBER: US/09/477,923
PRIOR FILING FATE: 2000-01 05
NUMBER OF SEQ 10 NOS: 6
                                                                                                                                                                    61 SLOKRGIVEOCCTSICSLYQLENYCN 86
                                                                                                                                                51 SLOKRGIVEQCCTSICSLYOLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             51 SLOKKGIVEOCCESICSLYOLENYCH BA
                                                                                                                                                                                                                                                                         Sequence 2, Application US/69723896
Patent No. 6509443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
Query Match
Best Local Similarity 100.
Matches 86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86; Conservative
                                                                                                                                                                                                                                                                                                                                    APPLICANT: Dubaquie, Yves
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ouery Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                : GENERAL INFORMATION:
                                                                                                                                                                                                                                                         US-09-723-896-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 4
US-09-878:380 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1-08: 828-60-SD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7 968-171-60-SD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ TO NO 2
LENGTH: 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: R6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                           â
                                                                                                                                                ó
                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

```
GENERAL INFORMATION:
APPLICANT: MUDFORDE, Franz Josef
APPLICANT: Reller, Reinhold
TITLE OF INVENTION: Improved process for obtaining
TITLE OF INVENTION: Improved process for obtaining
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ALORESS:
                                                                    1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAED;QVGQVELGGGGP;AGSLQPLALES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match 100.0%; Score 463: DB 2: Length 96; Best Local Similarity 100.0%; Pred. No. 1.8e-47; Matches 86; Conservative 6; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Finnedan, Henderson, Farranow, Garrett &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPEMATING SYSTEM: PC-DOS/MS-DAS
SOFTWARE: Paterlin Release #1.6, Version #1.30
CURRENT APPLICATION DATA:
0;
  Mismatches
  .
0
86: Conservative
  Matches
```

m

```
1 FVNOHLGGSHI,VEALYLVGGERGFFYTPKTRREAEDLQVGQVELGGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12 FVNQHLCGSH;VFAIXLVCGEKGFFYTPKTRKEAEDLQVGOVE;GGGGGAGSLQFLALEG 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 463; DB 1; Length 97; 100.0%; Pred. No. 1.8e 47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
    Process For Obtaining Proinsulin
Possessing Correctly Linked
Cystine Bridges
                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETTE, 3.5 INCH, 1.44 Mb STCRAGE
COMPUTER: 15M 386
                                                                                                            ADDRESSEE: Kenneth A. Genoni, Esq. STREET: Rt. 202-206 No. 5473049th/P.O. Box 2500 CITY: Somerville STATE: New Jersey COUNTRY: U.S.A. 21P: 08876-1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: 18M Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; Pred. No. 1.8
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: Barba:a V. Mauret, Esq.
REG:STRATION NUMBER: 31,287
REFERENCE/DOCKET NUMBER: HOE 92/F 384
TELECOMMUNICATION INFORMATION:
TELEPHONE: (908) 231-4079
TELEFAX: (908) 231-2255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: CONKlin, Darrell C.
APPLICANT: Lotton-Day, Catherine E.
APPLICANT: Lotk, Si.
APPLICANT: Jaspers, Stephen R.
ITLE OF INVENTION: INSULIN HOMOLOG
NUMBER OF SEGUENCES: 17
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 SLOKRGIVEOCCESICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GE P 4240420.7
                                                                                                                                                                                                                                                                                                                                       SOFTWARE: WORDPEKFECT 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/260,376A
FILING DATE: December 1, 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE: ZymoGenetics, inc.
STREET: 1201 Eastlake Avenue East
CITY: Seattle
STATE: WA
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 11, Application US/08/50720A Patent No. 6046028
                                                                                                                                                                                                                                                                                                                  OPERATING SYSTEM: WINDOWS 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: December 2, ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 97 Amino Acids
TYPE: Amino Acids
TYPE: Amino Acids (AA)
TOPOLOGY: not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 100.0
Matches 86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
  TITLE OF INVENTION: Prod
TITLE OF INVENTION: POSS
TITLE OF INVENTION: CYSI
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: December
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPELICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US 08-950-720A-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-160-376A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
  3-09-380-305494
Sequence 4, Application US/09386303A
Sequence 5. Application US/09386303A
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Rubroder, Franz-Josef
Keller, Reinhold
IITLE OF INVENTION: Improved process for obtaining
IITLE OF INVENTION: Improved process having correctly bended cystine bridges
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLOVGQVELGGGFGAGSLQPTALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                         NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: Finnegan, Henderson, Farrabow, Garrett
Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Indels
                                                                                                                                                                                                                                                                                                                         COUMTRY: USA
ZIP: 20005-3315
COMPUTER READABLE FORM:
MENTUM TYPEM FOR COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
COMPUTER: PER PC (RS/MS-LAS
SOFTWARE: PATENTIN Release #1.0, Version #1.40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: Leslie McDonell
FEGISTRATION NUMBER: 34,872
FEFERENCE/COCKET NUMBER: 02481 1600-00000
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 463; DB 4; 100.0%; Pred. No. 1.8e-47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/186,301A
FILING DATE: 31-Aug-1999
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 09/134,836
FILING DATE: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION: 1..96
SEQUENCE DESCRIPTION: SEG ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 SLUKRGIVEQCCTSICSLYQLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    71 SLOCKESTVEGCCTSICSLYQLENYCH 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE: (202) 408-4000
TELEFAX: (202) 408-4400
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 4. Application US/08160376A Patent No. 5473649
GENERAL INFORMATION:
APPLICANT: Obermeier, Ranier APPLICANT: Get!, Martin APPLICANT: Ludwig, Jurgen APPLICANT: Sabel, Walter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 96 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                        CITY: Washington STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity 100.
Matches 86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-386-303A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-150-376A-4
US-09-386-303A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
SOFIMARE: PERGENTIN RELEGISCE FLOY, VOTS
CORRENT APPLICATION NUMBER: US/08/784,582
FILING DATE: CONCURRENTLY HEREWITH
CLASSIFICATION GATA:
PRIOR APPLICATION NUMBER: US 60/026,427
FILING DATE: 15-GT-1996
PRIOR APPLICATION DATA:
FILING DATE: 15-GT-1996
FRIOR APPLICATION NUMBER: US 08/589,028
FILING DATE: 19-JAN-1996
FILING DATE: 19-JAN-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AS SLOKBOTORS INTO THE TELESCOPE STORE AND A STORE STORE AND A STO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Newgard, Christopher B.
APPLICANT: Halban, Philippe A.
APPLICANT: No. 6110767mington, Karl D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41 SLUKRGIVEQCOTSICSLA JLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Highlander, Steven L. REGISTRATION NUMBER: 37.642 REFERENCE/DOCKET NUMBER: UTSD:514 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arnold, White & Durkee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 2, Application US/08784582
Patent No. 6110707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Thigpen, Anice E. APPLICANT: Quaade, Christian APPLICANT: Kruse, Fred
   TELEPHONE: (512) 418-3000
TELEFRAX: (512) 474-7577
INFORMATION FOR SEO 1D NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 512/4/4'''...
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 110 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Clark, Samuel Á.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 : 512/416-3000
512/474-7577
                                                                                                                                              110 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P.O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS: ADDRESSE: Arnold, W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC of OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: McGarry,
TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: amino acid
STRANDEDNESS:
                                                                                                                                                                          amino acid
                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Texas
                                                                                                                                                                                                       STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: US
ZIP: 77210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE:
                                                                                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                          US-08-589-028-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-784:582-2
                                                                                                                                       LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY:
STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 FVNQHICGSHLVEALYLVCGERGFFYTPKT! ÆAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: Recombinant Expression of Proteins From TITLE OF INVENTION: Secretory Cell Lines
UMBER OF SECUENCES: 50
CORRESPONSENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 100.0%; Score 463: DB 3: Longth 110: Best Local Similarity 100.0%; Pred. No. 2.16-47; Matches 86; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS:DOS SOFTWARE: Patentin Release #1.0. VPrsion #1.30 CUMENT APPLICATION DATA: APPLICATION NUMBER: US/08/589,028 FILING DATE: CONCURRENTLY HEREWITH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: Highlander, Steven L.
REGISTRATION NUMBER: 47,642.
REFERENCE/DOCKET NUMBER: UTSD:426\HYL
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ### HITTH HITTH HITTH HITTH HITTH ### 85 SLOKRGIVEOCCTSICSL/VOLENYCN 11:0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No. 6087129mington, Karl D. Clark, Samuel A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 SLUKRGIVEQCCTSICSLYOLENYON 86
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/950,720A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: Arnold, White & Durkee
STHEET: P. O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Newgard, Christopher B. APPLICANT: Halban, Philippe
                                                                                                                                                                                                                                                                                                                                   60-96
                                                                                                                                                                                                                         ATTOREY/AGENT INFORMATION:
NAME: Sawislak, Deborah A
REGISTRATION NUMBER: 37,438
REFRENCE/COCKET NUMBER: 96-0'
TELECOMMUNICATION INFORMATION:
TELEPHONE: 206-442-6672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-589-028-2
; Sequence 2, Application US/08589028
; Patent No. 6087129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: No. 6087129mingtor
APPLICANT: Tingpen, Anice E.
APPLICANT: Quaade, Christian
APPLICANT: Guaade, Christian
APPLICANT: Kiuse, Fred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO: 11:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No. 60455286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 110 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 206-442-6678
                                                                                                CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STAD...
COUNTRY: USA
77210-4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tuesar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLACY: TAR
                                                                                                                                                                                                       FILING DATE:
                                                                   FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-950-720A 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŝ
```

```
1 FVNOHLCGSHI.VEALYI.VCGERGFFYTPKTRREAEDI.QVGQVELGGGPGAGSI.QPLALEG 60
                                                                                                                                                                           25 FVNOHLGGSHLVEALYLVCGERGFFYTPKTREAEDLQVGQVELGGGFGAGSLQPLALEG 84
                                                                       ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              McGarry, Dennis
FECTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
Ouery Match 100.0%; Score 463; DB 3; Length 110; Best Local Similarity 100.0%; Pred. No. 2.16-47; Matches 86; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SECRETORY CELL LINES
```

```
: 110 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE: protein US-08-472-701-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: (
                                                                                                                                                                                                                                                                                                                                                              ZIE: 02109 (875
COMPUTER READABLE FYRM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match
Best Local Similarity
Matches 86: Conserv
                                                                                                                                                                                                                                                                                                                                                   CHUNINY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
US-09-185-852-2
                                                                                        RESULT 12
US-08-472-701-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                      g
     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                        .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTR. EDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                     1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVFLGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 84
                                                                                                                                       Gaps
                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ö
                                                                                        ć
                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Newgard, Christopher &
APPLICANT: Halban, Philippe A.
APPLICANT: No. 6194176minqton, Kari i.
APPLICANT: Clark, Samuel A.
APPLICANT: Thigpen, Anice E.
APPLICANT: Thigpen, Anice E.
APPLICANT: Fred
APPLICANT: Ruse, Fred
TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
TITLE OF INVENTION: SECRETORY CELL LINES
NUMBER OF SEQUENCES. 56
                                                 100.0%; Score 463; DB 3; Length 110; 100.0%; Pred. No. 2.1e-47; ive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 3: Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .;
o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 463; DB 3;
Pred. No. 2.1e-47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                         61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/08/785,271
FILING DATE: CONCURRENTLY HEYEWILE
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/589,028
FILING DATE: 19-JAN-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           UTSD:513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           E: Arnold, White & Durkee P.O. Box 4433
                                                                                                                                                                                                                                                                                                            Sequence 2, Application US/08785273 Patent No. 6194176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: Highlander, Steven L. REGISTRATION NUMBER: 37,642 REFERENCE/CXCKET NUMBER: UTF TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEC ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              512/418-3000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  110 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                    86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             512/474-7577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear
linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loral Similarity
Matches 86; Conserv
                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Texas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDFUNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             77210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-785-271-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH
              US-08-784-582-2
                                                                                                                                                                                                                                                                                              US-08-785-271-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Matich
                                                                                    Matches
                                                                                                                                                                                                                                                                             RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                         ô
```

```
1 FVNQHICGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25 FVNQHLGGSHLVEALYLVCGERGFFYTEKTREBEDLQVGQVFLGGGPCAGSLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 2, Application US/09185852
Patent No. 6537806
GENERAL INFORMATION:
APPLICANT: Osborne, William R.A.
APPLICANT: Ramesh, Nagarajan
TITLE OF INFURIYON: Compositions and Methods for Treating Diabetes
FILE REFERENCE: P-UW 3262
CURRENT APPLICATION NUMBER: US/09/185,852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 110;
Sequence 2, Application US/08472701
Patent No. 6509165
GENERAL INFORMATION:
APPLICANT: Griffin, Ann C.
APPLICANT: Hickey, William F.
TITLE OF INVENTION: Detection and Treatment Methods for TITLE OF INVENTION: Type I Diabetes
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 463; DB 4;
100.0%; Pred, No. 2.1e-47;
ative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 SLOKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                         MEDIUM TYPE: Fishpy disk COMPUTER: ISM PC COMPATIBLE OPERATING SYSTEM: PC-DGS/MS-DGS SOFTWARE: ASGIT Text. CURRENT APPLICATION DAILS. APPLICATION NUMBER: US/08/472,701 FILL GO DATE:
                                                                                                                                                                      STAFE: Masson
STAFE: Masson
STAFE: Masson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: DECORLI, GIULIO A., Jr.
RECIGTRATION NUMBER: 31.503
REFERENCE/DOCKET NUMBER: DCI-092DV
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 08/272,220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 08-JULY-1994
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (617)227-5941
INFORMATION FOR SEQ 1D NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
```

ó

```
GENERAL INFORMATION:
                                                                                                                                                        US-09-280-030-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ 1D NO 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FFATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                              5
                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           े
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  급
                                                                                                                                                                                                                                             ó
                                                                                                                                                                                                                                                                            1 FVNQHLCGSHLVEALYLVCGERGFFYTFKTRREAEDLOVGOVELGGGPGAGSLUPLALEG 60
                                                                                                                                                                                                                                                                                               Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             empounds for Detecting diabetes
                                                                                                                                                                                                                                             .
()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 463; DB 5; Length 110; ilarity 100.0%; Pred. No. 2.1e-47; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                          Length 110;
                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                           0
                                                                                                                                                                                                    100.0%; Score 463; DB 4; 100.0%; Pred, No. 2.1e-47;
                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Proinsulin Peptid-
TITLE OF INVENTION: and Treating Type
NUMHER OF SEQUENCES: 23
COMPRESSIVE ADDRESS:
ANDRESSIVE LAHIVE 6 COCKFIELD
                                                                                                                                                                                                                                                                                                                                                                    AS SLOKBOLVEQCOTSLICE LITTLE TO SECURITY OF STREET
                                                                                                                                                                                                                                                                                                                                                 61 SLUKROLVEQCCTSTCSLYOLENYON BE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DCI 092PC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, suite 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PCT/US95/08596
CURRENT FILING DATE: 1998-11-04
EARLIER APPLICATION NUMBER: 60/087,660
EARLIER FILING DATE: 1998-06-02
NUMBER OF SEQ ID NOS: 11
SOFTWARE: Patentin Ver: 2.0
SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
COPERALIUS SYSTEM: PC DOS/MS-DGS
SOFTWARE: ASCII TEXT
CURRENT APPLICATION DATA:
FILLING DATE: WUMBER: PCT/US95/08596
FILLING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US 08/272,220
                                                                                                                                                                                                                                                                                                                                                                                                                                                         PCT-US95-08596-2
; Sequence 2. Application PC/TUS9508596
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION:
ATTORNEY/ADENT INFORMATION:
AMME: Defont; Gluio A., Jr.
REGISTRATION NUMBER: 11,503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/IXXKET NUMBER: DC
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08, FILING DATE: 08-JULY-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: (617)227-5941
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (617)227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SECUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Massachusetts
                                                                                                                             TYPE: PRT
ORGANISM: Homo sapiens
US-09-185-852-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           amino acid
                                                                                                                                                                                                                      Best Local Similarity
Matches 86; Conservi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 86; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               02109-1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PCT-US95-08596-2
                                                                                                            LENGTH: 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 14
                                                                                                                                                                                                                                                                                                              đ
                                                                                                                                                                                                                                                                                                                                                   ें
```

1 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLOVGQVELGGGPGAGSLOPLALEG 60

```
.
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Salo, Selji
APPLICANT: Magashikuni, Naohiko
APPLICANT: Higashikuni, Naohiko
APPLICANT: Higashikuni, Naohiko
APPLICANT: Kudo, Toshiyui
APPLICANT: Kudo, Toshiyui
APPLICANT: Kudo, Dasayki
APPLICANT: Kudo, Masaayi
TITLE OF INVENTION: DNAS ENCODING NEW FUSION PROTEINS AND PROCESSES FOR
TITLE OF INVENTION: PREPARING USEFUI, POLYPEPTIDES THROUGH EXPRESSION OF THE
TITLE OF INVENTION: DNAS
TITLE OF INVENTION NEW CONTROL OF A
THERE APPLICATION NEW CONTROL OF A
THERE APPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25 FVNQHI,CGSHI,VEAL,YLVCGERGFFYTPKTRREAEDJ,QVGQVELGGGPGAGSLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION: Description of Artificial Sequence: Designated OTHER INFORMATION: an amino acid sequence of OTHER INFORMATION: MWFSp-MWPmpl0-Met-Protosulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match 100.0%; Score 46%; DB 4; Length 117; Best Local Similarity 100.0%; Pred. No. 2.2e 47; Matches 86; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              September 15, 2603, 12:05:32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        92 SLOKRGIVEOCCTSICSLYQUENYCN 117
                                                                                                                                                                                                    61 SLUKRGIVEQCUTSICSLYQLENYCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 SLOKRGIVEOCCISICSLYOLENYCH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 63, Application US/09280030A
Patent No. 6506595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Search completed: Septer
Job time : 20,7276 secs
```

```
September 15, 2003, 12:03:35 : Search time 36.0645 Seconds (without alignments) 347.945 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 FVNQHLCGSHLVEALYLVCG......IVEQCCISICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cent.2.6/ptodata///pubpaa/USO7_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpaa/USO7_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpaa/USO6_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpaa/USO6_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpaa/USO8_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpaa/USO8_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpaa/USO8_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpaa/USO8_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpaa/USO8_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpaa/USO8_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpaa/USO9_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpa/USO9_PUBCOMB.ppp: *
Cent.2.6/ptodata//pubpa/USO9_PUBCOMB.ppp. *
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541936 seqs, 145912426 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Published_Applications_AA: *
                                                                                                                                                                                                                        OM protein . protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Maximum Match 1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-423-100-4
463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Searched:
                                                                                                                                                                                                                                                                                                                                          Run on:
```

Pred. No. is the number of results presided by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Score Match Length DB ID Score Match Length DB ID 453 100.0 86 11 US-09-878-380-1 454 100.0 86 11 US-09-878-380-1 455 100.0 86 14 US-10-028 15-2 455 100.0 86 14 US-10-028 15-2 455 100.0 86 14 US-10-028 15-2 455 100.0 110 9 US-09-205-7 455 100.0 110 9 US-09-205-7 455 100.0 110 10 US-09-815-229-3 Sequence 125, Appli 456 100.0 110 10 US-09-969-748C-6 Sequence 6, Appli 457 100.0 110 15 US-09-969-748C-6 Sequence 1, Appli 458 100.0 110 15 US-09-969-748C-6 Sequence 6, Appli 459 100.0 110 15 US-10-38-886-1 Sequence 6, Appli 461 100.0 110 15 US-10-38-813-2 Sequence 6, Appli 463 100.0 110 19 US-09-280-030-63 Sequence 65, Appli 463 100.0 110 10 US-09-280-030-63 Sequence 62, Appli 464 100.0 110 10 US-09-280-030-63 Sequence 62, Appli 465 100.0 130 9 US-09-280-030-63 Sequence 62, Appli 465 100.0 130 9 US-09-280-030-63 Sequence 62, Appli 467 98.7 96 10 US-09-95-297-805 Sequence 805, Appli 468 100.0 100.0 US-09-95-297-805		æ				
100.0 86 10 US : 09 * 878 380 · 1 100.0 86 11 US : 09 * 878 380 · 1 100.0 86 14 US : 10 * 0.8 17 14 100.0 86 14 US : 10 * 0.8 17 14 100.0 96 10 US : 09 * 947 .61 4 100.0 110 9 US : 09 * 947 .61 4 100.0 110 9 US : 09 * 9815 .22 9 100.0 110 12 US : 09 * 9814 4094 9 100.0 110 12 US : 09 * 9818 881 100.0 110 15 US : 10 * 0.38 881 2 100.0 110 15 US : 10 * 0.38 881 2 100.0 110 15 US : 09 * 280 * 0.00 * 63 100.0 110 9 US : 09 * 280 * 0.00 * 63 100.0 110 9 US : 09 * 280 * 0.00 * 63 100.0 110 12 US : 09 * 280 * 0.00 * 63 100.0 110 12 US : 09 * 0.00 * 0.	Score	Guery	Length	ОВ	Q1	Description
100.0 86 11 US-00-858 "358-4 100.0 86 14 US-10*-054 "10-2 100.0 86 14 US-10*-054 "10-2 100.0 86 14 US-10*-0554 "10-2 100.0 96 10 US-09-947 "61-4 100.0 110 9 US-09-947 "61-4 100.0 110 10 US-09-969 748C-6 100.0 110 15 US-09-969 748C-6 100.0 110 15 US-09-969 748C-6 100.0 110 15 US-10*-328 813-2 100.0 110 15 US-09-280*-030*-63 100.0 130 9 US-09-280*-030*-62 100.0 130 9 US-09-947-563-5 66.1 166 9 US-09-955-297-805	463	100.0	98	0.	US-09-878-380-1	
150.0 86 14 US-1(1-028 15-2 100.0 86 14 US-1(1-028 15-2 100.0 86 14 US-1(1-028 15-2 100.0 86 14 US-10-054.7 61-4 100.0 110 9 US-09-265-8 125 100.0 110 9 US-09-804 409A-9 100.0 110 12 US-09-804 409A-9 100.0 110 12 US-09-804 66-1 100.0 117 9 US-10-328 813-2 100.0 117 9 US-09-280-030-63 100.0 130 9 US-09-280-033-5 66.1 166 9 US-09-925-297-805 100.0 100.	464	100.0	98	11	US-09-858-0358-4	
100.0 86 14 US-10-054-73-4 100.0 96 10 US-09-947 -613-4 100.0 110 9 US-09-947 -613-4 100.0 110 9 US-09-815-229-3 100.0 110 12 US-09-816-229-3 100.0 110 12 US-09-816-6 100.0 110 15 US-10-038-686-1 100.0 110 15 US-10-038-686-1 100.0 117 9 US-09-280-030-63 100.0 117 9 US-09-280-030-63 100.0 118 9 US-09-280-030-63 100.1 166 9 US-09-947-563-5 106.1 166 9 US-09-925-297-805	463	150.0	98	14	US-10-028 :15-2	
100.0 96 10 US-09-947 ·61-4 100.0 110 9 US-09-269 B 125 100.0 110 9 US-09-804 4054-9 100.0 110 10 US-09-804 4054-9 100.0 110 15 US-09-804 4054-9 100.0 110 15 US-09-86-86-1 100.0 110 15 US-09-280-030-63 100.0 117 9 US-09-280-030-63 100.0 117 9 US-09-280-030-63 100.1 166 9 US-09-947-563-5 66.1 166 9 US-09-925-297-805	463	100.0	98	14	US-10-05473-4	
100.0 110 9 US-09-205-4 B 125 100.0 110 9 US-09-805-209-3 100.0 110 10 US-09-804 408-4 100.0 110 12 US-09-804 748C-6 100.0 110 15 US-09-869-748C-6 100.0 110 15 US-10-32B-818-2 100.0 117 9 US-09-280-030-63 100.0 130 9 US-09-280-030-62 66.1 166 9 US-09-947-563-5	463	100.0	96 (0.7	US-09-947 -63-4	
100.0 110 9 US-09-815-229-3 100.0 110 10 US-09-844-409A-9 100.0 110 12 US-09-969-748C-6 100.0 110 15 US-10-038-686-1 100.0 110 15 US-10-038-686-1 100.0 117 9 US-09-280-030-63 100.0 137 9 US-09-280-030-63 100.0 130 9 US-09-280-030-62 66.1 166 9 US-09-947-563-5	464	100.0		2	US-09-205-+ 8 125	
100.0 110 10 US-09-804 4.09A-9 100.0 110 12 US-09-9804 748C-6 100.0 110 15 US-10-03B-686.1 100.0 110 15 US-10-328-813-2 100.0 117 9 US-09-280-030-63 100.0 137 9 US-09-280-030-62 98.7 96 10 US-09-947-563-5 66.1 166 9 US-09-925-297-805	463	100.0		'n	US-09-815-229-3	Sequence 3, Appli
100.0 110 12 US·09-969-748C-6 100.0 110 15 US·10-038-686-1 100.0 110 15 US·10-038-686-1 100.0 117 9 US·09-280-030-63 100.0 137 9 US·09-280-030-62 100.1 136 9 US·09-947-563-5 66.1 166 9 US·09-925-297-805	464	100.0		10	US-09-804-409A-9	Sequence 9, Appli
100.0 110 15 US-10-038-686-1 100.0 110 15 US-10-328-813-2 100.0 137 9 US-09-280-030-63 100.0 130 9 US-09-280-030-62 98.7 96 10 US-09-947-563-5 66.1 166 9 US-09-925-297-805	464	100.0		12	US-09-969-748C-6	Sequence 6, Appli
100.0 110 15 US-10-328-813-2 Sequence 2, 100.0 117 9 US-09-280-030-63 Sequence 63, 100.0 130 9 US-09-280-030-62 Sequence 62, 98.7 96 10 US-09-947-563-5 Sequence 82, 66.1 166 9 US-09-925-297-805 Sequence 805,	463	100.0		15	US-10-038-686-1	Sequence 1, Appli
100.0 117 9 US-09-280-030-63 Sequence 63, 100.0 130 9 US-09-280-030-62 Sequence 62, 98.7 96 10 US-09-947-563-5 Sequence 55, 66.1 166 9 US-09-925-297-805 Sequence 805,	463	100.0		15	US-10-328-813-2	
100.0 130 9 US-09-280-030-62 Sequence 62, 98.7 96 10 US-09-947-563-5 Sequence 5, 66.1 166 9 US-09-925-297-805 Sequence 805,	463	100.0		5	US-09-280-030-63	
98.7 96 10 US-09-947-563-5 66.1 166 9 US-09-925-297-805	463	100.0		σ	US-09-280-030-62	_
66.1 166 9 US-09-925-297-805	457	98.7		10	US-09-947-563-5	Sequence 5, Appli
	306	66.1		6	US-09-925-297-805	Sequence 805, App

a 6 a

RESULT 2

ALIGNMENTS

```
MOLECULE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-947-563-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ê
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 FUNDHLAGSHLUBALYLUGGERGFFYTPRI HERABIDGUGQUELGGGFGAGSLQFGATEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 FYNDHLOGSHLYBALYLVIGERSFFYTHYTHYRBABDLQYGQVELGGGGPGAGALQHLALBG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             x
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 453; DB 14; Length 86;
106.0%; Pred. No. 9.7e-45;
Tye 8; Mismatches 0; Indels 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                [190,134] Shorry 4649 [14,11] Tongth Phy
Location, Print No. 5 28,450
                                                                                                                                                                    APPLICANT: Dubaquie, Yves
APPLICANT: Thynoff, Ellen
APPLICANT: Johnan, Herry B.
TITLE OF INVENTION: METHOD FOR TREATING CARTILAGE DISORDERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismittansim
                                                                                                                                                                                                                                                                                                                            FILE REFERENCE: P1794R1
CURRENT APPLICATION NUMBER: US/09/858,9358
CURRENT FILINS DATE: 2002-37-02
PRICK ETISING DATE: 2000-11-15
PRICK FILING DATE: 2000-11-15
PRICK PILING DATE: 2000-05-16
NUMBER OF SEQ 1D NOS: 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Liseman, Henry
TITLE OF INVENTION: PROTEIN VARIANTS
TITLE REFERENCE: P1712R1.
CURRENT APPLICATION NUMBER: US/10/02k,416
CURRENT FILLIN: DATE: 2001-12-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 SECKRGIVEQCCTSICSLYQLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILTHER HITTER STATE OF STORY BY THE STORY B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5) SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ELLELLITTELLITTELLITTELLITTELLE STOKKGIVEGCCTSICSLYGLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: US/09/477,524
PRIOR FILING TATE: 2000 61-05
NUMBER OF SEC ID NOS: 6
SEC ID NO 2
                                            Sequence 4, Application US/09858935B
Publication No. US20030069177A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2, Application US/10028410
; Publication No. US/20020160955Al
; GENERAL INFCRMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 10-054-873 4
: Sequence 4, Application US/10054873
: Publication No. US20020164712A1
: GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Loral Similarity 100.0
Matches 86: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Parisonas ave
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Dubaquie, Yves
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM. Hodge sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loca, Simerarity
Matches Et. Cassety
US-09-858-615B-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DS:09-828-615B 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 4
US 10-028-415 Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08-10 028-430-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGIH: RE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEC ID NO 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Mater
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

```
insulin precursors having correctly bonded cystine brid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                \circ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
APPLICANT: Gan, Zhong Ru
TITLE OF INVENTION: Chimeric Protein Containing an
Intramolecular Chaperone-Like Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.0%; Score 464; DB 14; Length 86; Best Local Similarity 100.0%; Pred. No. 9.7e-45; Matches 86; Conservative 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Finnegan, Henderson, Farrabow, Garrett &
                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Rubroder, Franz-Josef
Keiler, Reinsid
TITLE OF INVENTION: Improved process for obtaining
                                                                                                                         ADDRESSEE: Townsend and Townsend and Grew LLP STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: MYCTOLT, Frank J
REGISTRATION NUMBER: 46,946
REFERENCE/DOCKET N MBER: 020167-000130US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA: WC PCTZNNSE/CODES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILLING LATTO (1)-MAR-1998
APPLITATION NOMBER: US 09/42* 100
                                                                                                                                                                                                                                                                                                                                                                                CHRENT APPLICATION DATA:
RAPILOKION NUMBER: US/10/054.873
FILING DATE: 22-53:-2002
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                            C:MPUTER REAGASIE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IHM PC compatible
OPERATING SYSTEM: PC-NOS/MS-LAGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE DESCRIPTION: SEQ 1D NO. 4: 08-10-054-273-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 SECKRGIVEUPTESICSEYOLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51 SLCKRGIVEQ**CTSICSLYOLENYCN &6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: 118M PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: 1300 I Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 11-DEZ-2000
A.F.KNEYZAGENT TAFORMATTON:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 4, Application 05/09947563 Patent No. US20020156234A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 86 amino a ids
                                                                                                                                                                  CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear
ULE TYPE: protein
                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SECUENCES: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: Washington
STATE: D.C.
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: amine acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEC IT NO:
                                                                          NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 20005-3315
                                                                                                                                                                                                                                          21P: 94111 5834
                                                                                                                                                                                                                     COUNTRY: USA
```

```
APPLICANT: Filvaroff, Ellen H.
APPLICANT: Filvaroff, Ellen H.
APPLICANT: Okumu, Franklin W.
TITLE OF INVENTION: USE OF INSULIN FOR THE TREATMENT OF CARTILAGENOUS DISORDERS FILE REFERENCE: P1286R1US
CURRENT APPLICATION NUMBER: US/09/R15,229
FULNS APPLICATION NUMBER: US/09/R15,229
PRIOR FILING NUMBER: US/05/192.1.3
PRIOR FILING NATE: 2000/03-24
PRIOR FILING NATE: 2000/03-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 FVNQHI,CGSHLVEALYI,VCGERGFFYTPKTRREAEDI,QVGQVELGG3PGAGSLQPLALEG 60
                                       1 FVNQHICGSHLVEALYLVCGERGFFYTPKTRRFAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                 25 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVQQVELGGGPGAGSLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25 FVNQHI.GSHLVEALYLCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 FVNQHI.CGSHI.VEALYLVCGERGFFYTPKTRREAEDI.QVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25 FVNQHLCGSHLVEALYLVGERGFFYTPKTKREAEDLQVGQVELGGGPGAGSLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CENERAL INFORMATION:
APPLICANT: KIEFER, TIMOTHY J.
APPLICANT: CHEUNG, ANTHONY T.
APPLICANT: CHEUNG, ANTHONY T.
TITLE OF INVENTION: CAMPOSITIONS AND METHADS FOR REGULATED PROTEIN
TITLE OF INVENTION: EXPRESSION IN SUT
FILE REPERENCE: 0.59996/0.27 8721
CURRENT APPLICATION NUMBER: US/09/804.4.95A
CURRENT FILING DATE: 2001-03-12
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 463; DB 10; 100.0%; Pred. No. 1.3e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.0%; Score 463; DB 9; Best Local Similarity 100.0%; Pred. No. 1.3e-44; Matches 86; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                         85 SLOKRGIVEOCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 SLQKRGIVEQCCTSICSLYQLENYCN 86 HILLIHIHIHIHIHIHIHIHIHIH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 SLOKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    : Sequence 9, Application US/09804409A
: Patent No. US20020155100A1
                                                                                                                                                                                                                                                                                Sequence 3, Application US/09815229
Patent No. US20020058614Al
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 100.
Matches 86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; ORGANISM: Homo sap us
US-09-815-229-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-804-409A-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-804-409A-9
                                                                                                                                                                                                                                     RESULT 7
US-09-815-229-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEO ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGIH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 8
                                                                           a
                                                                                                                            ŝ
                                                                                                                                                                    ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ပ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ··
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match 100.0%; Score 463; DB 10; Length 97; Best Local Similarity 100.0%; Pred. No. 1.1e-44; Matches 86; Conservative 0; Mismatches 0; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 463; DB 9; Length 110; 100.0%; Pred. No. 1.3e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: O'SQ, SCOLT
TITLE OF INVENTION: THERAPEUTIC AND DIAGNISTIC TOOLS FOR TITLE OF INVENTION: IMPAIRED GLUCOSE TOLERANCE CONDITIONS FILE REFERENCE: 00786/351004
CURRENT APPLICATION NUMBER: 0'S/09/205, 658
CURRENT FILING DATE: 1998-12-03
EARLIER FILING DATE: 1997-05-15
EARLIER PILING DATE: 1997-05-15
EARLIER REPLING DATE: 1997-07-07
EARLIER FILING DATE: 1997-07-07
SARLIER FILING DATE: 1998-05-15
NUMBER OF SEQ 1D NOS: 328
NUMBER OF SEQ 1D NOS: 328

SOFTWARE: FESTSEQ for Windows Version 4.0
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/947,563
FILING DATE: 07-Sep-2001
CLASSIFICATION: «Unknown»
PRIOR APPLICATION NUMBER: 09/134,836
FILING DATE: «Unknown»
APPLICATION NUMBER: 09/134,836
FILING DATE: «Unknown»
ATTORNEY/AGENT INFORMATION:
NAME: Leslie McDonell
REGISTRATION NUMBER: 94872
REGISTRATION NUMBER: 92481.16.00 00000
TELECOMMUNICATION NUMBER: 92481.16.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE DESCRIPTION: SEQ 15 NO: 4 US-09-947-563-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 SLUKRGIVEQCCTSICSLYOLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           71 SLOKRGIVEOCCTSICSLYOLENYON 96
                                                                                                                                                                                                                                                                                                                     TELEPHONE: (202) 408-4000
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 125, Application CS/09205558
Patent No. US20010029617A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 96 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Stachnicherss: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          prote.a.
                                                                                                                                                                                                                                                                                                                                                                                                                                      TYFE: aming acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Theology: Linear McGentler TYPE: prote. ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity
Matches 86; Conserval
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    us-09 205-658-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-205-658-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ 1D NO 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
```

Gaps

0

Gaps

```
Sequence 63, Application US/09280030A

Patent No. US20010021515A1

GENERAL INFORMATION:
APPLICANT: Higashikuni. Nachiko
APPLICANT: Kondo, Masaaki
ITILE OF INVENTION: PREPARINC USEFUL POLYPEPTINES THROUGH EXPRESSION OF THE
ITILE OF INVENTION: PREPARINC USEFUL POLYPEPTINES THROUGH EXPRESSION OF THE
ITILE OF INVENTION: DAMS
ITILE OF INVENTION: DAMS
CURRENT APPLICATION NUMBER: US/09/280,035A

CURRENT APPLICATION NUMBER: US/09/280,035A

CURRENT FILING DATE: 1999-03-26

EARLIER APPLICATION NUMBER: JP10-8739/1998

EARLIER FILING DATE: 1998-03-31

NUMBER OF SEQ 1D NOS: 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
   1 FVNOHLCGSHLVEALYI,VCGERGFFYTPKTRREAEDLOVGGVELGGGFGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION: Description of Artificial Sequence: Designated is OTHER INFORMATION: an amino acid sequence of OTHER INFORMATION: MWFSP-MWPmp10-Met-Proinsulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Ramesh, William R.A. APPLICANT: Ramesh, Nagarajan TITLE OF INVENTION: Compositions and Methods for Treating Diabetes TITLE OF INVENTION: Compositions and Methods for Treating Diabetes CURRENT APPLICATION NUMBER: US/10/328.81?
CURRENT APPLICATION NUMBER: US/10/328.81?
PRIOR FILLING DATE: 1994.61.64
PRIOR FILLING DATE: 1994 US/04/186.82.64
PRIOR AFFLICATION NUMBER: 60/987.64.6
NUMBER OF SEQ ID NOS: II.
SOFTWARE: PATCALIN VOS: L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 463; DB 15; 100.0%; Pred. No. 1.3e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                           # FILE | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 SLOKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                     61 SLOKRGIVEGGCTSICSLYOLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                             Sequence 2, Application US/10328813
Publication No. US/20030113305Al
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
ORGANISM: Artificia: Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Patentin Ver. 2.0 SEQ ID NO 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 100.
Matches 86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-280-030-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-280-030-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-328-813-2
                                                                                                                                                                                                                                                                                                                                                                       US-10-328-813-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    đ
                                                                              q
                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                   APPLICANT: PARAMETER FRANKENCE LINE.
APPLICANT: SHERIDAN, Philip, J.
APPLICANT: SHERIDAN, Philip, J.
APPLICANT: SHERIDAN, Philip, J.
APPLICANT: GLAPIN, Jacqueline, M.
APPLICANT: GLAPIN, Jacqueline, M.
APPLICANT: GLAPIN, Jacqueline, M.
APPLICANT: GLAPIN, Jacqueline, M.
APPLICANT: GLAPIN, Steven
ITTLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE TRANSPORT OF BIOLOGICALLY ACTIVE
FILE OF INVENTION: AGENTS ACROSS CELLULAR BARRIERS
FILE OF INVENTION: COMPOSITIONS AGENTS ACROSS CELLULAR BARRIERS
FILE OF INVENTION: AGENTS ACROSS CELLULAR BARRIERS
FILE OF INVENTION NUMBER: US 60/246.740
PRIOR FILING LATE: 2000-11-13
PRIOR FILING LATE: 2000-11-13
PRIOR FILING LATE: 2000-10-02
NUMBER: OF SECULO NOS: 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25 FVNQHILGGSHLVEALYLVGGEKGFFYTPKTRREAEDLOVGOVELGGGGGGGGGGLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 453; DB 12; 100.0%; Pred. No. 1.3e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 463; DB 15;
100.0%; Pred. No. 1.3e-44;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismat.ches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Orban, Tihamer
TTTLE OF INVENTION: AUTOANTIGEN VACCINE
FILE REFERENCE: 10276-06701
CUBRENT APPLICATION NUMBER: US/13/038,666
CURRENT FILING DATE: 2002-05-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - HILLITHILLIHILLIHILLIHIHIHIH BS SLOKRGIVEDCCTSICSLYÖLENYCN 110
85 SLOKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 SLUKRGIVEQCCTSICSLYQLENYON 85
                                                                                                                                                                                                                                                          APPLICANT: ARIZEKE PHARMACEUTICALS, INC
APPLICANT: HOUSTON, LOID 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: 60/260,068
PRIOR FILING DATE: 2001-01-05
NUMBER OF SEQ ID NOS: 6
                                                                                                                                                                            ; Sequence 6, Application US/09969748C; Publication No. US20030161809A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1, Application US/10038686 Publication No. US20036045467A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 100.
Matches 86, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Momo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match
Best Local Similarity
Matches 86: Conserv
                                                                                                                                      US-09-969-748C-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-969-748C-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
US-10-038-686 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-038-686-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ 10 NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ô
```

```
LOCATION: (84)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11 FVNQHLGGSHLVFALYLVCGERGFFYTPKTRKEBEDLQVGQVELGGGPGAGSLQPLALEG 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLOVGOVELGGGPGAGSLOPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98.7%; Score 457; DB 10; Length 96;
100.0%; Pred. No. 5.2e·44;
tive 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Rosen et al.
TITLE OF INVENTION Nucleic Acids, Proteins and Antibodies
FILE REFERENCE: RAIO5
CURRENT APPLICATION NUMHER: US/09/925,297
CURRENT FILING DATE: 2001-08-10
PRIOR APPLICATION NUMHER: PCT/USU0/05899
PRIOR FILING DATE: 2000-03-08
Z1F: 2005-315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: 1HM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                 NAME: LOSTIE MCDONELL
REGISTRATION NUMBER: 34,872
REFERENCE/DOCKET NUMBER: 02481,1600-00000
                                                                                                                                  CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/947.563
FILING DATE: 07-Sep-2001
CLASSIFICATION: <UNKNOWN>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DUCATION: 1.96
SEQUENCE DESCRIPTION: SEQ ID NO: 5:
US:09-947-563-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 SLOKRGIVEQUITSICSLYQLENYC 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71 SEQERGIVEQCCISICSLYGLENYC 95
                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 408-4009
TELEPAX: (202) 408-4400
INF MALLOW FOR SEQ LOWD: 5:
SEGUENCE CHARACTER.STIES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Escherichia coll
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           : Sequence 805, Application US/09925297
: Patent No. US20020081659A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/124,270 PRIOR FILING DATE: 1999:03-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TENGTH: 96 arino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
MeLECULE TYPE: protein
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 150.03
Matches 85; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 928
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: orino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08-09-925-297-805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGIH: 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Rubroder, Franz.Josei
Keller, Reinhold
TITLE OF INVENTION: Improved proce < for obtaining
insulin precursors having correctly bonded cystine bridges
                                                                    Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: DNAS ENGING NEW FISION PROTEINS AND PROCESSES FOR TITLE OF INVENTION: PREPARING USEFUL POLYFPTIDES THROUGH EXPRESSION OF THE TITLE OF INVENTION: DNAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRR: : EDIQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                1 FVNOHLOGSHLVEALYLVGERGFFYTPKTRREAEDLOVGOVELGGGPGASSLOFFALEG 60
                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION: Description of Artificial Sequence: Designated is OTHER INFORMATION: an amino acid Sequence of OTHER INFORMATION: MMPSp-MWPmp10-(His)6-Linker-Met-Proinsulin
                                                                  0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 463; DB 9; Length 130; Harity 100.0%; Pred. No. 1.6e-44; Conservative 0; Mismatches 0; Indels (
                     Length 117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: Finnegan, Henderson, Farrabow, Garrett
                                                                0; Indels
                  Score 463; DB 9;
Pred. No. 1.4e-44;
                                                                0: Mismatches
                  100.0%; Score 463; 100.0%; Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILE REFERENCE: 382,1026
CURRENT APPLICATION NUMBER: US/09/280,0
CURRENT FILING DATE: 1999-03-16
EARLIER APPLICATION NUMBER: JP10-87319/
EARLIER FILING DATE: 1998-03-11
NUMBER CF SEQ ID NOS: 66
SOFTWARE: Fatentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 SLOKRGIVEQCCTSICSLYOLENYCN 86
[1111111111111111111111]
92 SLOKRGIVEQCCTSICSLYOLENYCN 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: 1300 I Street, N.W
                                                                                                                                                                                                                                                                                                                                  US-09 280-036-62

Sequence 62 Application US/09280013A

F Patent No. US20016021515A1

GENERAL INFERMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 5, Application US/09947563 Patent No. US20326156234A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT, Sato, Seriji
APPLICANT, Bilashikumi, Nachtko
Kudo, Toshiyaki
APPLICANT: Kondo, Masbaki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Arrificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dunner
                  Query Match
Best Local Similarity 100.0
Matches 86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: Washington STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 86; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 14
US-09-947-563-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                   APPL (CAN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                     q
                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
```

```
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids NAME/KEY: SITE
LOCATION: (105)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids NAME/KEY: SITE
LOCATION: (124)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids CAHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids CAHER INFORMATION: (132)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids NAME/KEY: SITE
LOCATION: (143)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids LOCATION: (145)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids NAME/KEY: SITE
LOCATION: (145)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids NAME/KEY: SITE
LOCATION: (165)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids OTHER INFORMATION: (165)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids OTHER INFORMATION: (165)
```

Search completed: September 15, 2003, 12:24:35 Job time: 36.0645 secs

QC

0; Gaps 0;

Score (9): .8 %; Tonath 156, Pred. No. % 20:27; 0; Mismattl & 2; Indels

Query Match Best Local Similarity 96.7%; Matches 58; Conservative L

U; Mismatel :

GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.

OM profein - protein search, using sw model

September 15, 2003, 11:56:45; Search time 14.1792 Seconds (without alignments) 583.284 Million cell updates/sec Run on:

US-09-423-100-4 Title: Perfect score:

1 FVNQHLGGSHLVEALYLVCG......IVFQCCTSICSEYGLENYCN 86 Sequences

Scoring table:

ВLOSUM62 Gapop 10.0 , Gapext 0.5

283308 seqs, 95168682 residues Searched:

405 + 87 hits satisfying chosen parameters: Total number of

Minimum DB seq legation of Maximum DB seq legation 20095, order

Post processing: Misirum Mater, ex

Maximum Match, 100% Listing first 45 summaries

PIR_76:*
1: pirl:*
5: pir2:*
4: pir3:* Database :

Fred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARTES

		æ			SOMMARIES	
Result		Query				
୍ଦୁ	Score	Match	Length DB	H.	110	Description
-	4.5.3	100.0	110	-	OHdI	insulin precurser
7	463	100.0	110	~	A42179	=
۴	456	98.5	110	.7	B42179	
4	454	9.8	110	7	390178	ü
j.	4.24	91.6	110		INKI	institu precursor
ų.	417	30.3	110	4	THIS	insulin precursor
۲.	* * * *	95.1	86	٠.	1PHO	insulin precursor
æ	₽ 5.2	85.1	110	~	1PRT2	insulin 2 precurso
ග	7 0 k	85.1	110	~	INMS2	in 2
10	342	84.7	108	?	A39883	ā
11	3.65	84.7	110	7	148166	insulin precursor
12	385	83.2	110	~	IPKT1	•
13	383	82.7	84	~	IPPG	in
14	366.5	79.2	105	~	1980	insulin precursor
15	46.6	79.0	108		INMS;	insulin 1 precurso
16	5.44.5	72.2	108	~	S09278	insulin precursor
17	\$7078	69.2	77	-	INSH	insulin precursor
18	, i 4		110	~ 1	1PGP	insulic precursor
16	277.5	59.9	109		IPRIDU	insulia precursor
50	276.5	26.7	103	7	151221	insulin precursor
21	265.5	57.3	106	-	IPXL2	insulin II precurs
22	265.5	57.3	107	-	IPCH	insulin precursor
5 1	262.5	56.7	106	-	IPXt.1	insulin I precurso
54	256.5	55.4	51	-	INWHP	insulin - sperm wh
25	256.5	55.4	51	_	I NWHE	insulin - finback
56	256.5	55.4	51	-	INEL	insulin - elephant
2.1	256.5	55.4	81	~	IPDK	insulin precursor
28	256	55.3	96	7	PC7082	epidermal growth f
29	254.5	55.0	51	-	INHY	

nsulin - Egyptian	ā		ulin - goat		1		nsulin . North Am								Ξ
Su	51	Sol	1::S	ins	ins	ins	Sui	ins	ins	ins	ins	1115	50.1	ins.	SUS
بد	5.1	s.		V.		SU	6.2						5.7	77	6.3
INMESS	A591	1 NWH 1 S	INCI	INCM	INCI	INMK	3003	INCE	INGS	INPO	X TN !	SONI	A611,	A604	5444
I NMSS	2 A591] : NWH.]	1 INCT	I INCM	1 INCT	1 I NMK	2 3003	INCE	1 INGS	1 INPO	I NTK	I INOS	1 A611,	2 A604	2 5444
51 1 INMSS	51 2 A5915	51 1 INWH1	51 1 INCT	S1 1 INCM	51 1 INCT	51 1 INMK	51 2 3003	51 I INCB	51 1 1NGS	51 1 INPÚ	51 1 INTK	51 1 1NOS	51 1 A611,	51 2 A604	52 2 S444
5:	5.1 2 .1	51	51 1	21	51 1	51 1	51.7 51 2 3003	5	51 1	51	- 13		51 1	5.1 2.4	52 2
54.3 51 1	54.1 51 2 4	53.2 51 1	53.2 51 1	53.2 51 1	53.0 51 1	52.8 51 1	51 2	50.6	50.0 51 1	49.1 51 1	49.1 51 1	49.1 51 1	49.1 51 1 7	49.1 51 2 4	48.6 52 2 5

ALIGNMENIS

RESULT 1

_	insulis precentes for California - haman
	NyAlternare dates: prepression
	Crypecies: Bone sapiens (man)
	C.Cate: 23-Oct-1981 #Sequence revision 23 cct 1981 #Lext change 08-Dec-2000
_	C:Accession: A93222; A94253; A94216; A94251; A93144; A92075; A91186; 158114; A01579
	R:Bell, G.1., Pictet, R.L., Rut er, W.J., Cordell, B., Tischer, E., Goodman, H.M.
	Nature 284, 26-32, 1980
	A:Title: Sequence of the human usulin gene.
	A;Reterence number: A93222; MSH :80126725; PMID:6243748
	A; Accession: A93222
	A:Molecule type: DNA
	A; Residues: 1-110 <bel></bel>
	A:Cross-references: GB:J00265: NID:q186429; PIDN:AAA59172.1; PID:q386828
	Rillrich, A.: Dull, T.F.: Grav. A.: Brosins, J.: Sures. 1.
_	Science 209, 612-615, 1980
_	A:Title: Genetic variation in the buman incuits open
	A. Reference number: A9425 s. MOLD: 80236313. PMID: 5448962
	A; Accession: A94253
	A:Molecule type: DNA
	A; Residues: 1-110 <u.l.></u.l.>
_	Aptrossyreferences: Gattud265; NID:q186429, PIDN:AAA59172.1: PID:q186828
_	RiBell, G.1.; Swain, W.F.; Pictet, R.; Cordell, B.; Goodman, B.M.; Rutter, W.J.
	Nature 282, 525 527, 1979
	A:Title: Nucleotide sequence of a cDNA clone encoding human preproinsulin.
_	A: Reference number: A93216; MUID:80054779; PMID:503234
	A:Accession: A93216
	A: Molecule type: mrna
	A-Residues: 1-110 cps; 2>

A.Residues: [1:10 <BEL2>
A.Cross-reterences: GR.JC0265: NID:g186429; PIDN:AAA59172.1: PID:g386828
A.Cross-reterences: GR.JC0265: NID:g186429; PIDN:AAA59172.1: PID:g386828
Science 208, 57-59, 1980
A.Title: Nucleotide sequence of human preproinsulin complementary DNA.
A.Reference number: A9425; MUID:80147417; PMID:6927840
A.Recession: A9425; MUID:80147417; PMID:6927840
A.Residues: 1-10 <SGRA
A.Residues: 1-10 <SG

A,Title: Amino-acid sequence of human insulin. A,Reference number: A93144

A.Accession: A93144
A.Molecule type: protein
A.Residues: 25-54,90-110 AIC>
A.Residues: 25-54,90-110 AIC>
J. Biol. Chem. 246, 1375-1386, 1971
A.Title: Studies on human proinsulin. Isolation and amino acid sequence of the huma A.Reference cumber: A92075; MUID:71116410; PMID:510171
A.Rocession: A92075
A.Molecule type: protein

Gaps

A; Residues:

```
A Residues: 1-110 cSETA
A Cross-references: EMBL:X61092; NID:q22808: PIDN:CAA43405.1; PID:q22809
A Cross-references: EMBL:X61092; NID:q22808: PIDN:CAA43405.1; PID:q22809
A NOTE: sequence extracted from NCBi backbone (NCBIN:95185, NCBIP:95194)
B iol. Chem. 247, 4866-4811, 1972
A Title: Determination of the amino acid sequence of the monkey, sincep, and dog proin A Reference number: A9211: Mulb:72258016; FMID:4626469
A Rocession: A0232
A Molecule: type: protein
A Residues: 57-87 cPET>
C Superfamily: insulin
C:Keywords: hormone; pancreas
B:1 24/Domain: insulin chain B status predicted content of CES-54,90-110/Product: insulin chain B status predicted content of CES-54,90-110/Product connecting per content content of CES-54,90-110/Product connecting per content content of CES-54,90-110/Product connecting per content content content of CES-54,90-110/Product connecting per content conten
                 Mol. Biol. Evol. 9, 193-203, 1992
A; itle: Sequences of primate insulin genes support the hypothesis of a slower rate of A; Reference number: A42179; MulD: 92219953; PMID:1560757
A; Accession: A42179
A; Accession: A42179
A; Status: preliminary
A; Molecule type: DNA
A; Rosidunes: 1-110 <SE1>A; Rosidunes: 1-110 <SE1>A; Rosidunes: 1-110 <SE1>A; Cross-references: EMRL:X6i089; NID:q38251; PiDN:CAA44403.1: PID:g38252
A; Note: Sequence extracted from NCB: backbone (NCBIP:95067)
C; Genetics: 63/1
C; Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cispecies: Percopitherus authops (gree; monkey, grivet)
Cibate: 04 Mar-1993 #sequence_revision 18 Nov 1994 #text_change 16-Jul-1999
Cibate: 04 Mar-1993 #sequence_revision 18 Nov 1994 #text_change 16-Jul-1999
Cibate: 84219, A65212; St494; S22056
Missino, S.; Bell, G.; Li, M.; M.; Mol. Riol. Evol. 9, 193-203, 1992
A;Title: Sequences of primate insulin genes sipport the hypothesis of a slower rate of A;Reference number: A42179; MUID:92219953; PMID:1560757
A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 FVNOHLGGSHLVEALYLVGGERGFFYTPKTRREAEDLOVGOVELGGGRGAGSLOPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25 FVIQHLIGSHI VEALYLVIQEROFFYTPKTRREAED QVOQVELGGGRAGGEGEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 FVNQHIZGSHIVEALYIVGGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25 FVNOHLGGSHLVEALYLVCGERGFFYTPKTRREAEDPOVGOVELGGGPGAGSLQPLALEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98.5%; Score 456; DB 2; Length 110; 98.8%; Pred. No. 1.6e-42; 5ve 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .:
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 463; DB 2;
100.0%; Pred. No. 2.8e-43;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  85 SLUKRGIVEGPPISIOSI YOLENYON 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HITTELLITELLITE (HITTELLITE)
85 SLOKRGIVEDCCTSICSI (QLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ALESTER TOTAL STEED STORY OF A STORY OF STORY OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SLOKRGIVEQCCISICSL OLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              insulin precursor - green monkey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 100.
86; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 98.8
Matches 85; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rynaithani, V.K.

Rynaithani, V.K.

A.Title: The synthesis of Copptide of human proinsulin.

A.Geference number: A91658, MUID:75040007, PMID:4803804

A.Contents: annotation: synthesis of residues 57-87

R.Geiger, R., Jaeqer, G., Koenig, W.

Chem. Ber. 166, 2347-2352, 1973

A.Title: Synthesis of the complete sequence of human proinsulin C-peptide and its [Glu-9]
                                                                                                                                                                                                                                                                                                                       A:Molecule type: protein
A:Residues: 57-87 <KOA>
R:Lucassen, A.M.: Julier, C.; Beressi, J.P.; Joitard, C.; Froguel, F.; Lathrop, M.; Bell
Nature Genet, 4, 305-310, 1993
A:Title: Susceptibility to insulin dependent diabetes mellitus maps to a 4.1 kb segment
A:Reference number: 158114; MJID:93364428; PMID:8358440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A.Contents: annotation: synthesis of residur 57.87
R.Kaufmann, J.E.: Irminger, J.C.: Halban, P.A.
Biochem, J. 310, 869-874, 1995
A.Title: Sequence requirements for proinsulin processing at the B-chain/C peptide juncti
A.Reference number: $58661; MUID:96013185; PMID:7575420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A:Contents: annotations: synthesis
A:Note: dism,lide bendem human insulin wis synthesized: the synthetic bennone was ident
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AjCross-references: GB:L15440; NID:q307071; PIDN:AAA59179.1: PID:g307072
R:Sieber, P.: Kamber, B.; Hartmann, A.: Joehl, A.; Riniker, B.: Rittel, W.
Chim. Acta 57, 2617-2621, 1994
A;Title: Totalsynthese von Humaninstiin unter gezietter Bildang der Disulfiabludangen.
A;Reference number: A91636: MCID:75077272: PMIE 4444244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A: Contents: annotation: site-directed mutagenesis study of protectytic processing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 FVNUHLGGSHLVEALYLVGGERGFFYTPKTFRRAEDLÖVGOVELGGGPGAGSLUPLALES 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Species: Pau troglodytes (chimpanzee)
Date: 04-Mar-1993 #sequence_revision 18-Nov-1994 #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25 FVNOHIGGSHLVEALYLVOGERGEFYTPKTRREAEDLOVGOVELGGGPGAGSLOPIALEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
:
                                                                                                                                                           AATILLE: Amino acid sequence of the C-peptide of human proinsulin. A:Reference number: A91186; MUID:71257722; PMID:5560404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 463; DH 1; Length 110; Harity 100.0%; Pred. No. 2.86-43; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F;25:54/Nomain: insulin chain H status experimental GBCH>
F;25:54/Nomain: insulin chain H status experimental GMAT>
F;25:54/90-110/Product: insulin Estatus experimental GMAT>
F;57-97/Domain: connecting C peptide Hstatus experimental GCPEP>
F;90-110/Nomain: insulin chain A status experimental ACH>
F;31-96,44:109,95:100/Disulfide bonds: #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24/Domain: signal sequence #status predicted <SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A,Accession: 158114
A:Status: preliminary; translated from GB/EMSL/DDBJ
                                                   R:Ko, A.; Smyth, D.G.; Markussen, J.; Sundby, F.
Eur. J. Blochem. 20, 190-199, 1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Note: article in German with English abstract
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SLOKRGIVEOCTSICSLYOLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A:Cross references: GDB:119349; OMIM:176730
A:Map position: 11p15.5-11p15.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C:Species: Pau troglodytes (chimp C:Date: 04-Mar-1993 #sequence_rev C:Accession: A42179; S22058 R:Seino, S.; Bell, G.I.; Li, W.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                insulin precursor - chimpanzee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Superfamily: insulla
Keywords: hormone; pancreas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Molecule type: DNA
A;Residues: 1-59,63-110 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Reference number: A90914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 86; Conserv
                                                                                                                                                                                                                                                                                    A; Accession: A91186
57-87
```

A; Introns: 63/1

A; Gene: GDB: INS

C: Genetacs:

0

9 84

RESULT 4

RESULT 2 A42179

ò g ò q

```
A;Molecule type: protein
A;Residues: 1-30;66.86 <4RA>
R;Residues: 1-30;66.86 <4RA>
R;rager, H.S.: Steiner, D.F.
3. Biol. Chem. 247, 7936-7940, 1972
A;Title: Primary structures of the proinsulin connecting peptides of the rat and ho A;Reference number: A92120; MUID:73061498; PMID:4640931
                                                                                                                                                                                                                                                            C:Species: Canis lupus familiaris (doq)
C:Date: 24-Apr-1984 *sequence_revision 15-Nov-1984 *text_change 16:Jul 1999
C:Date: 24-Apr-1984 *sequence_revision 15-Nov-1984 *text_change 16:Jul 1999
C:Accession: A92413: A01587; S16493
R:KWok, S.C.M.: Chan, S.J.: Steiner, D.F.
J. Bhol. Cham. 258, 2587-2583, 1983
Biblo. Cham. 258, 2587-2583, 1983
A.Fitle: Cloning and nucleotide sequence analysis of the dog insulin gene. Coded am A.Reference number: A92413: MUID:83109071; PMID:6296142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A:Molecule type: protein
A:Molecule type: protein
A:Readidues: 25-54; 90-110
A:Redidues: 25-55; 90-110
J. Biol. Chem. 247, 4866-4871, 1972
A:Title: Determination of the amino acid sequence of the monkey, sheep, and dog pro
A:Reference number: A92111: MUID:72258016; PMID:4626369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A:Cross-reterences: GB:V30179; GB:J00042; NID:q994; PIDN:CAA23475.1; PID:g995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 FVNQHI.CGSHI.VEALYI.VCGERGFFYTPKTRREAEDI.QVGQVELCGGPGAGSI.QPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25 FVNQHLCGSHLVEALYLVGERGFFYTPKARREVEDLQVRIVELAGAPGEGGLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Species: Equus caballus (domestic horse)
C;Date: 13-Jul-1981 *sequence_revision 13-Jul-1981 *text_change 16-Jul-1999
C;Accession: A01580; A92120
R;Harris, J1.; Sanger, F.: Mughton, M.A.
Arch. Biochem. Biophys, 65, 427-428, 1956
A;Title: Species differences in insulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A:Title: Species variation in the amino acid sequence of insulin. A Reference number: A90029; MUID:66i60119; PMID:5449593 A:Accession: A01587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F:57-87/Domain: connecting peptide *status predicted <CPEP>
F:90-110/Domain: insulin chain A *status experimental <ACH>
F:31-96,43-109,95-100/Disulfide bonds: *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F:25-54/Domain: insulin chain B Estatus experimental <BCH>
F:25-54,90-110/Product: insulin Estatus experimental <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C:Keywords: hormone; pancreas
F:1-24/Domain: signal sequence #status predicted <SLG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match 96.1%; Score 417; DB 1; D. Best Local Similarity 89.5%; Pred. No. 2.9e-38; Matches 77; Conservative 1; Mismatches 8;
                                           61 SLOKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 SLOKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: protein
A;Residues: 65-85,'I',87 <PET>
C;Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Am. J. Med. 40, 662-666, 1966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Reference number: A90382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             insulin precursor - horse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Molecule type: DNA
A;Residues: 1-110 <SMI>
                                                                                                                                                                                                                              insulin precursor . dog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: A92413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Accession: A01580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R:Smith, 1.F.
                                                                                                                                                                  RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 7
         ò
                                                                  gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                    Riwetekam, W.: Groneberg, J.; Leineweber, M.; Wengenmayer, F.; Winnacker, E.L.
Gene 19, 179-183, 1982
A.Title: The nucleotide sequence of cDNA criing for preproinsulin from the primate Macad
A.Reference number: JQ0178; MUID:83080474; MID:6184262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ö.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ribevaskar, S.U.: Giddings, S.J.: Rajakumar, P.A.; Carnaghi, L.R.; Metton, K.K.; Zahm, J. Biol. Chem. 269, 8445-8454, 1994
Arittle: Insulin gene expression and insulin synthesis in mammalian neuronal cells. A; Reference number: A53438; MUID:94179230; PMID:8132571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 FVNOHICGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSIQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C:Species: Macaca fascicularis (crab-eating macaque)
C:Date: 07-Sep-1990 *sequence_revision 07-Sep-1990 *text_change 16-Jul-1999
C:Accession: J00178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  insulin precursor - rabbit
NAiternale names: preproinsulin
C:Species: oryctolagus cuniculus (domestic rabbit)
C:Dete: 24-Apr.1984 *sequence_revision 23-Aug-1997 *text_change 18-Jun-1999
C:Accession: A53438; A01581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                   A Residues: 1-110 (WET>
A.Cross-references: GB:J00336; NID:g342121; PIDN:AAA36849.1; PID:q342122
A.Cross-references: GB:J00336; NID:g342121; PIDN:AAA36849.1; PID:q342122
C.Superfamily: insulin
F:1-24/Domain: signal seguence #status predicted <SIG>F:25-54,90-110/Product: insulin #status predicted <AAT>
F:25-54,90-110/Pomain: insulin chain # #status predicted <BCH>
F:55-89/Domain: insulin connecting C peptide #status predicted <CPT>
F:90-110/Domain: insulin connecting A #status predicted <ATH>
F:31-96,43-104,95-100/Disulfide bonds: #status predicted <ATH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A Status: preliminary
A Molecule type: mRNA
A: Residues: 1-110 < DEV>
A: Cross-references: GB:U03610; NID:9467970; PIDN:AAA19033.1; PID:9467971
R; Smith, L.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A.Title: Species variation in the amino acid sequence of insulin A.Reference number: A90029; MUID:66160:15; FM:D:5949593
A.Accession: A01581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 110:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1; Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C.Keywords: hormone: pancreas
E.1-24/Domain: signal sequence *status predicted <SIG>F.25-54/Domain: insulin chain B *status experimental <BCH>F.25-54.90-10/Product: insulin *status experimental <HAT>F.25-54.90-110/Domain: connecting C peptide *status predicted <CPEP>F:90-110/Domain: insulin chain A *status experimental <ACH>F:31-96.43-109,95-100/Disulfide bonds: *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 456; DR 2:
Pred, No. 1,66:42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                91.6%; Score 424; DB 1; 90.7%; Pred. No. 5e-39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 O: Mismat Hes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               85 SLOKRGIVEOCCTSICSLYQLENYCH [1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 SLOKRGIVEQCCISICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *** 86
86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Molecule type: protein
A;Residues: 25-54:90-110 <SMI>
C;Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 90.79
Matches 78; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          85; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Med. 40, 662-666, 1966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match
Best Local Similarity
Malches 85, Conserv
                                                                                                                                                                                                                                                                                   A; Molecule type: mRNA
                                                                                                                                                                                                                                                  A; Accession: J00178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A. J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
```

ö

09 84

ò â

5 ò

```
Cispecies: Mus musculus (house mouse)
Cispecies: Musculus (house mouse)
A Wille: Musculus (house mouse)
A Wille: Musculus (house mouse)
A Maccession: A AS 43 42 - 1996
A Musculus (house musculus mouse prepioinsulin.
A Accession: A Musculus (house musculus)
A Maccession: Musculus (house)
A Musculus (house musculus)
A Musculus (house musculus)
A Musculus (house)
A Musculus (house musculus)
A Maccession A Musculus
A Maccession A Musculus
A Maccession A Musculus
A Musculus (house musculus)
A Maccession A Musculus
A Musculus (house)
A Musculus (ho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 FVNOHLGGSHLVEALYLVGGERGFFYTPKTRREAEDLOVGOVELGGGPGAGSLOPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 FVNOHLGGSHLVEALYLVGGERGFFYTPKTRREAEDLOVGOVELGGGFFGAGSLQPLALEG
                                                                                                                                                                                                                                                                                                                                                                                                  25 FVKQHLCGSHLVEALYLVCGERGFFYTPMSRREVEDPQVAQLELGGGPGAGDLQTLALEV
                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                        ö
                                                                                                            Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F;57-87/Domain: connecting peptide *status experimental <CPEP. F;90-110/Domain: insulin chain A *status experimental <ACH>F;31-96,43-109,95-100/Disulfide bonds: *status predicted
                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A.Accession: 801592
A.Molecule type: protein
A.Residues: 25-54:90-110 < 80E>
C.Genetics:
A.Introns: 63/1
C.Superfamily: insulin
C.Superfamily: insulin
C.Superfamily: insulin
F.25-54/Domain: insulin chain # *status predicted < 81G>
F.25-54/Domain: insulin chain # *status experimental < 80H>
F.25-54/90-110/Product: insulin *status experimental < 8MT>
               Score 394; DB 1; Lenc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             85.1%; Score 394; DB 1;
84.9%; Pred. No. 9.2e-36;
                                                                                                                                                          Pred. No. 9.2e
4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 SLUKRGIVEDCCTSICSLYQLENYCN 86
                                                                                                       85.1%;
84.9%;
                                                                                       Ouery Match
Best Local Similarity 84.94
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Overy Match
Rest Local Similarity 84.9%
These 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        insulin 2 precursor - mouse
                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       â
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A.Residues: [116 cLOM>
A.Residues: [116 cLOM>
A.Residues: [116 cLOM>
A.Residues: GB.J0048; NID:q204958; PIDN:AAA41443 1; PID:q204959

R.Steiner, D.F.; Clark, J.L.; Nolan, C.; Rui ustein, A.H.; Margoliash, E.; Aten, B.; Oye
Recent Prog. Horm. Res. 25, 207-282, 1969
A.Title: Projusulin and the biosynthesis of n.sulin.
A.Reference number: A94231; MUID:70067613; :MID:4311938
A;Accession: A92120
A;Molecule type: protein
A;Molecule type: Arotein
A;Molecule type: Arotein
C;Comment: X's at positions 31-32 and 64-65 represent paired basic residues assumed (by C;Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A.Molecule type: protein
A.Residues: 25-54-90-110 <STE>
A.Residues: 25-54-90-110 <STE>
B.Tager, H.S.: Stoiner, D.F.
J. Biol. Chem. 247, 7936-7940, 1972
A.Title: Primary structures of the proinsule: "onnecting peptides of the rat and horse.
A.Reference number: A92120; MUID:73061498; FMID:4640931
A.Reference number: A92120.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CiSpecies: Rattus norvegicus (Norway rat)
CiDate: 23-oct.1981 #sequence_revision 23-oct.1981 #text_change 24-Sep-1999
CiDate: 23-oct.1981 #sequence_revision 23-oct.1981 #text_change 24-Sep-1999
CiAccession: B90789; B94231; C92120; 164880; A01590; B92120
R:Lonedico: P.; Rosenthal, N.; Efstratiadis, A.; Gilbert, W.; Kolodner, R.; Tizard, R.
Cell 18, 545-558, 1979
A;Title: The structure and evolution of the two nonallelic rat preproinsulin genes.
A;Reference number: A90789; MUID:80045035; PFID:458284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FVNOHLGGSHUVBALYLYGGERGFFYTPKAXXEAEDFQVGEVELGGGPGLGGGCPLQPLALAG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 FVNQHICGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A Molecule type: protein

R.Residues: 57-87 < TAG.

R.Residues: 57-87 < TAG.

R.Lomedico, P.T.: Rosenthal, N.: Kolodner, R.; Efstratiadis, A.: Giibert,

Ann. N. Y. Acad. Sci. 343, 425-432, 1980

A.Title: The structure of rat. preproinsulin q-- s.

R.Reference number: 151945; MUID:80240379; PM: 249167

A.Recession: 164880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A.Cross.references: GB:M25585; NID:q204950; PIDN:AAA41440.1; PID:q204952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                            C.Keywords: hormone; pancreas
F.1-30/Domain: insulin chain B *status experimental <BCH>
F.1-30/Domain: insulin status experimental <MAT>
F.33-65/Yomain: connecting peptide *status experimental <CPEP>
F.66-86/Yomain: insulin chain A *status experimental <CPEP>
F.70-72,19-85,71-76/Disulfide bonds: *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 394; DB 1; Length 86;
Pred. No. 7.2e-36;
1; Mismatches 12; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cyteywords: Normone: pancreas
Cyteywords: hormone: pancreas
F;1-24/Domain: signal sequence *status predicted <SIG>
F;25-54/Domain: insulin chain # *status experimental <BGH>
F;25-54/90·ilO/Product: insulin *status experimental <MAT>
F;77-87/Domain: connecting peptide *status experimental <CPEP>
F;31-87/Domain: insulin chain # *status experimental <ACPE>
F;31-96,43-109,95-100/Disulfide bonds: *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A:Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 SLOKRGIVEOCCTSICSLYQLENYIN RE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 (1111) THE CONTROL OF THE CONTROL 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          85.1%;
84.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 84.99
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      insulin 2 precursor – rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Residues: 1:110 < RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C;Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A: Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Acression: 890789
```

.. 0

A; Introns: 63/1

```
A.Molecule type: protein
A.Molecule type: protein
A.Rolecule type: protein
B.Tager, H.S.; Steiner, D.F.
J. Biol. Chem. 247, 7936-7946, 1972
A.Title: Finanty structures of the profinsulin consecting peptides of the rat and ho
A.Reference sumber: A92120; MUD0.7360349g; PMID:4440931
A.Reference sumber: A92120; MUD0.7360349g; PMID:4440931
A.Residues: 57-87 <1405
A.Residues: 57-87 <1405
A.Residues: 57-87 <1405
A.Residues: 57-87 <1405
A.Reference number: 151945; MUD0:80240379; PMID:6249167
                                      A;Cross-references: GB:J00747; NID:g204956; PIDN:AAA41442.1; PID:g204957
R:Lomedico, P.; Rosenthal, N.; Efstratiadis, A.; Gilbert, W.: Kolodner, R.; Iizard,
                                                                                                                                                                                                                                                                                                                A:Residucs: [-110 </mw.)
A:Residucs: [-110 </mw.)
A:Cross-references: GB:J00747; NID:q204956; PIDN:AAA41442.1; PID:g204957
A:Cross-references: GB:J00747; NID:q204956; PIDN:AAA41442.1; PID:g204957
B:Stefner, D.F.: Clark, J.L.; Norman, C.: Rubenstein, A.H.; Margoliash, E.; Aton, B. Recent Proq. Horm. Res. 25, 207-282, 108.
A:Title: Proinsulin and the biosynthesis of insulin.
A:Reference number: A94231; MUID:70067613; PMID:4311938
                                                                                                               Cell 18, 545-558, 1979
A:Tille: The structure and evolution of the two nonailelic rat preproinsulin genes. A:Reference number: A90789; MUID:80045035; PMID:498284
A:Accession: A90789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 HTHE FEHRE TO THE FERRE TO THE STATE TO T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            insulin precursor - pig
C;Species: Sus scrota dom-stica (domestic pig)
C;Date: 22-Jun-1981 | Evequence_fevision 22-Jun-1981 | Etext_change 16-Jui-1999
C;Accession: A01583; AFQUENCE_SIG492; A60835; B60835
R;Chance, R.E.; Ellis, R.M.; Bromer, W.W.
Science 161, 165-165, 1968
A;Title: Porcine proinsulin: characterization and amino acid sequence.
A;Reference number: A94240; MUID:68286485; PMID:5657063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 PVNOHLCGSHLVEALYLVCGERGFFYTPKTRREARDLQVGQVELGGGPGAGSLQPLALEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A:Molecuie type: DNA
A:Residues: 1-110 <RES>
A:Cross-references: GB:MZ5584; NID:q204947; P:DN:AAA1439.1; PID:q204948
C:Senetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C. Superfamily: Insulin
C. Keywords: hormone; pancreas
F.1-24/Domain: signal sequence status predicted <SIG>
F.25-54/Domain: insulin chain B *status experimental <BGH>
F.25-54/90-110/Product; insulin *status experimental <BRAT>
F.57-57/Domain: connecting peptide *status experimental <CPEP>
F.90-110/Domain: insulin chain A *status experimental <CPEP>
F.90-110/Domain: insulin chain A *status experimental <CPEP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             83.2%; Score 385; DB 1;
83.7%; Pred. No. 8.8e-35;
tive 4; Mismatches 10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 SLOKRGIVEOCCTSICSLYÜLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A:Status: translated from GB/EMML/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Molecule type: protein
A;Residues: 1-34, 'Q', 36 84 <CHA>
R;Chance, R.E.
Submitted to the Atlas, July 1970
A;Reference number: A94572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0uery Match
Best Local Similarity 83.74
Matches 72; Conservative
A; Residues: 1-110 <COR>
                                                                                                                                                                                                                                                                                           DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: A94231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: A01583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Accession: 151945
                                                                                                                                                                                                                                                                                           A; Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Gene: INS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                             Riseino, S.; Steiner, D.F.; Bell, G.I.
Proc. Natl. Acad. Sci. U.S.A. 84, 7423-7427, 1987
A.Title: Sequence of a New World primate insulin having low biological potency and immun
A.Reference number: A39883; MUID:8804:1119; PMID:3118367
A.Accession: A39883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             't 1981 #text_change 24-Sep-1999
[51945, A01589
. F.M.: Ullrich, A.: Pictet, R.: Rutter, W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. EVNORLAGSHLVEALST WASERGEFYTEK - PPAETGOVGOVETAG BRANSLAG ALEG 50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PREAFDLOVGOVELGGGPGAGSLOPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     insulin precursor - douroucouli
C:Species: Actus Lrivirgatus (douroucouli, ...tht monkey, owl monkey)
C:Date: 27-Nov-1991 *sequence_revision 27-Nov-1991 *text_change 16-Jul-;999
C:Accession: A39883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  insulin precursor - golden hamster
C:Species: Mesocricetus auratus (golden hamster)
C:Date: 62-5ul-1996 #sequence_revision 62-5ul 1995 #text_change 16 Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              :Cross-references, GB:J02989; NID:g176555; PIDN:AAA35374.1; PID:g176556 ; Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A.Residues: 110 <RES>
A.Cross-references: GB:M26328: NID:g191420: PIDN:AAA37089.1; PID:q365360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cell 18, 533-543, 1979
A;Title: Isolation and characterization of . cloned rat insulin gene.
A;Reference number: A90788; MUID:80045034; FMID:498283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C.Accession: 148166
R.Bell, G.I.; Sanchez-Pescador, R.
Diabetes 31, 297-300, 1984
A.Title: Sequence of a CDNA encoding Syrian hamster preproinsulin.
A.Reterence number: 148166; MUID:84133036; PMID:6365663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Stobals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           84.7%; Score 392; DB 2; 94.9%; Pred, No. 1,56 35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   84.7%; Score 392; DB 2;
84.9%; Pred. No. 1.5e-35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Status: preliminary; translated from GB/FMBL/DDRJ:
Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Selle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 . Misnatiches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ** PMOKRGVVDQCCTSTCSLYQUQNYCN 1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C.Species: Rattus norvegicus (Norway rat)
C.Date: 24-oct-1981 #sequence_revision 23
C.Accession: A90788; A90789; A94231; B921.
R.Cordell, B.; Bell, G.; Tischer, E.; Dew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61 SLOKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85 AQCKRGIVDQCCTSTCST/YQLENYCN 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 FVNQHLCGSHLVEALYLVCGERGFFYTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 SLUKRGIVEOCCTSICSLYOLENYON E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A: Mism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match
Rest Local Similarity 94,55,
Yes 24, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           insulin | precursor - rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
Matches 73; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Res: ducs: 1-108 3E1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C:Supertamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: preliminary
A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Accession: A90788
A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Accession: 148166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            â
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

9

ö

2. The invest

```
A:Molecule type: protein
A:Residues: 57-82 cSAL>
R:Sanger, F.; Thompson, E.O.P.
Biochem, J. 53, 366-374, 1953
A:Title: The amino-acid sequence in the diycyl chain of insulin, 2. The investigatio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A.Molecule type: profess.
A.Residues: 25:40, X:32-42, X:144-54 <CH2>
A.Residues: 25:40, X:32-42, X:144-54 <CH2>
B.Ryle, A.P.; Sanger, F.; Smith, L.F.; Kital, R.
B.Bochem. J. 60, 541-556, 1955
A.Title: The disulphide bonds of insulin.
A.Reference number: A9043 and Associate annotation; amides; disulfides
R.Wenzel, T.; Eckerskorn, C.; Lottspeich, F.; Baumeister, W.
FRBS Lett. 349, 205-209, 1994
A.Title: Existence of a molecular ruler in proteasomes suggested by analysis of degraveterine number: S46258: MUID:94126921; PMID:805657
                                          A:Molecule type: protein
A:Residues: 57-82 - esre>
R:Salokangas, A.; Smyth, D.G.; Markussen, J.; Sundby, F.
Eur. J. Blochem. 20, 183-189, 1971
A:Title: Rovine proinsulin: amino acid sequence of the C-peptide isolated from panct
A:Reference number: A91185; MUID:71257721; PMID:5105368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Molecule type: protoin
A:Mosidues 25-54 csA2>
B;Chenq, R.; Kawakishi, S.
Bur, J. Blochem, 223, 759-764, 1994
A;Title: Site-specific oxidation of histidine residues in glycated insulin mediated
A;Reference number: S48184; MUID:9433378; PMID:805895)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 FVNQHLGGSHLVEALYLVGGERGFFYTPKTHREAEDLQVGQVELGXGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25 FVNQHLCGSHLVEALYLVCGERGFFYTPKARREVEGPQVGALELAGGPGAG-----GLEG 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Molecule type: protein
A;Residues: 85:105 csAN>
R;Sanger, F; Tuppy, 1951
R;Sanger, F; 49, 481-49, 1951
A;Title: Tac amino-acid sequence in the phenylalanyl chain of insulin.
A;Reference number: A9044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DR 1; Length 105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              F.124 / Domain: Signal sequence retatus predicted «SIG»
F.25-54 / Domain: insulin chain B tetatus experimental «BCH»
F.25-54 / B-105/product: insulin status experimental «MAT»
F.57-82 / Domain: connecting peptide retatus experimental «MAT»
F.57-82 / Domain: insulin chain A fetatus experimental «ACH»
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 79.2%; Score 366.5; DR 1; Length 1 Best Local Similarity 80.2%; Pred. No. 8.7e-31; Matches 69; Conservative 2; Mismatches 10; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       F:31-91,43-104,90-95/Diswifide bunds: #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80 PPQKRGIVEQCGASVCSL/QUENYCN 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 SLOKRGIVEOCCISICSLYOLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C: Keywords: hormone; pancreas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              insulin 1 precursor - mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A:Reference number: A90342
A:Accession: A90342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A:Status: preliminary
A:Molecule type: protein
A:Residues: 25-54 <WEN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A:Molecule type: protein
A:Residues: 85-105 <CHE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A:Status: preilminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A:Accession: S48185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALACTPESSION: A90341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Accession: S48184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: S46258
               A; Accession: A92074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A:Molecule type: protein
A:Residues: 33.62.580,
R:Blundell, F.: Dodson, G.: Bodskr., F.: Morecla. F.
Adv. Protein Chem. 26. 274-402, 1972
A:Title: Issulin. the structure in the crystal and its reflection is chemistry and biold
A:Reference number: A90017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cispecies: Bos primigenius taurus (cattle)
Cispecies: 44 Apri 1944 sequence-revision 22-Apri 1995 #text_change 15-Jul-1999
CiAccession: 45 Apri 1944 sequence_revision 22-Apri 1995 #text_change 15-Jul-1999
CiAccession: 450909: A92080. A92074. A91185: Resch. P.K.; Field. J.B.; Frazier. M.L.
RiD'Agostino, J.: Y unes, M.A.; White, J.W.; Rosch, P.K.; Field. J.B.; Frazier. M.L.
And. Endocrino, J.: 327-331, 1987
A:Title: Clouring and nucleotide sequence analysis of complementary deoxyribonucleic acid
A:Reference number: A40909; MUID:88288209; PMID:2456452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A/NOTE: the authors report the characterization of a connecting peptide variant lacking A:Accession: 860835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RiSteiner, D.F.: Cho, S.: Oyer, P.E.: Terris. S.: Peterson, J.D.: Rubenstein, A.H. J. Biol. Chem. 246, 1365-1374, 197. Asking a Astitie: Isolation and characterization of proinsulin C-peptide from bovine pancreas. A:Reference number: A92074; MUID:71116409; PMID:5545080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 FVNOHLCGSHLVEALYLVCGERGFFYTPKT::REAEDLGVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A:Molevule type: mRNA
A:Residues: 1-105 staAs
A:Cross-references: GB:M54979; NID:q163778; P:DN:AAA30722.1; PID:q163579
A:Experimental source: fetal pancreas
A:Experimental source: fetal pancreas
R:Nolau, C : Marqoliash, E.: Peterson, J D.: Steiner, D.F.
A: Biol. Chem. 246, 2780-2795, 1972
A:Title: The structure of bovine proinsulin.
A:Reference number: A92080; MUID:71166442; PH:D:4928892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              82.7%; Score 383; DB 1; Length 84; 86.0%; Pred. No. 1e-34; tive 1; Mismate is 9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Contents: annotation: X-ray crystallography, 1.9 angstroms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C.Superfamily: insuin
C.Superfamily: insuin
C.Reywords: hormone; pancreas
F.1-30/Domain: insuin Estatus experimental <BCH>
F.1-30.64-84/Product: insuin Estatus experimental <MAT>
F.3-365/Domain: connecting peptide Estatus experimental <CI
F.64-84/Domain: insuin chain A Estatus experimental <ACH>
F.7-70.19-83.69-74/DISUIfide bonds: #status experimental
                                                                                                                                                                                                                                                                                                                                                             R.Snel, L.: Damgaard, U.
Horm. Metab. Res. 20, 476-480, 1988
A.Fitle: Proinsuin heterogeneity in pigs.
A.Reforence number: A60835; MUID:89032179; PMID:3J81865
                              A.Molecule type: protein
A.Residues: 1-84 <CH2>
R.Brown, H.: Sanger, F.; Kitai, R.
Biochem, J. 60, 556-565, 1955
A.Title: The structure of pig and sheep insulins.
A.Reference number: A90344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59 PPUKRGIVEQCCTSICSLYQLENYCN 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Molecule type: protein
A;Residues: 33-38,40-62 <SNE>
                                                                                                                                                                                                                                                                                        A;Molecule type: protein
A;Residues: 1:30;31-51 <BRO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                insulin precursor - bevine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: protein
A; Residues: 25-105 <NOL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
Matches 74: Conserv
                                                                                                                                                                                                                                                     A; Accession: S16492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A:Accession: A60835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A. Accession: A40909
A; Accession: A94572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
```

3

```
A.McGeuler 1979: protein
A.Residues: 25 54,88-108 480E>
A.Residues: 25 54,88-108 480E>
A.Residues: 25 54,88-108 480E>
J. Chromatog: 462 243-254, 1989
A.Title: Reversed phase high-performance inquid chromatographic analyses of insulin bios A.Reference number: A61012: MUID:89292678; PMID:2661585
A.McGersich number: A61012: MUID:89292678; PMID:2661585
A.McGersich type: protein
A.Molevule type: protein
A.Residues: 57-85 <LINA
C.Superfamily: Insulin
C.Superfamily: Insulin
E.1-24/Domain: siynal sequence #status predict d <SIG>
F.25-54/Domain: insulin chain B status experimental <MAT>
E.25-54,88-108/Product: insulin Estatus experimental <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Actross references (BEX04725) NID5952712; PIDN:CAA28434.1; PID5952713
B;Sawa, T.; Ondaku, S.; Morioka, H.; Yano, S.
B;Sawa, T.; Ondaku, S.; Morioka, H.; Yano, S.
By Mol. Endocrinol. S. 601-67, 1990
A,Title: Molecular cioning and DNA sequence analysis of preproinsulin qenes in the NON 1A; Reference number: A48172; MUID:90372989; PMID:2397023
A;Recession: A48172
A;Recession: Anno acti Sequence of the fw. 1937
A;Recession: After a fw. 1937
A;Recession: A fw. 1937
A
C.Species: Mus musculus (house mouse)
C.bate: 24 Apr.1984 *sequence_revision 14.Jul-1994 *text_change 18.Jun 1999
C.Accession: B26342, A48172; A01592; B61012
C.Haccession: B26342, A48172; A01592; B61012
J. Mol. Evol. 23, 305-312, 1986
A.Title: Characterization of the two nonallelic genes encoding mouse preproinsulin.
A.Reference number: A92965; MUID:87169768; PMID:3104603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ·.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 FVNUHLGGSHLVEALYLVGGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Z: Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1; Length 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                79.0%; Score 366; DB-1; Length 108
81.4%; Pred. No. 1e-32;
tive 4; Mismatches 10; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F.57-85/Domain: connecting peptide *status experimental <CPEP> F.88-108/Domain: insulin chain A *status experimental <ACH> F.31-94,44:07,93-98/Disuifide bonds: *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search completed: September 15, 2003, 12:04:19 Job time : 14:1792 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 81.46
Matches 70; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
A; Residues: 1 108 <WEN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A: Accession: Adles2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
```

	Ltd.
1 5.1.6	Compugen
ersion	- 2003
GenCore	(c) 1993 -
	Copyright

sw model	
3	
using	
search,	
protein	
- 1	
OM protein	
Ö	

September 15, 2003, 11:54:00 ; Search time 8.01434 Seconds (without alignments) 504.633 Million cell updates/sec Run on:

Title: Perfect score: Sequence:

US-09-423-100-4
463
1 FVNOHLGGSHLVEALYLVGG......IVEQCGTSICSLYQLENYCN 86

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

127853 seqs, 47026705 residues Searched:

12786. Total number of hits satistying chosen parameters:

Minimum DR soq Tength: 0 Maximum DR seq Tength: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summeries

SwissProt_41:* Database :

Fred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMAR: ES

Result		Ouerv				
CN	Score	Match	Match Length DB	DB	η	Description
-	463	0 001	01.	:	NAMES OF THE PROPERTY OF THE P	00100 0000 000000
			21.	٠,	Number of the	
٧,	7 ·	0.001	017	٠.	L AN L AN L A	
- ,	474	S. S.	011	٦.	INS_CERAE	
4	9	98.5	110	-	INS_MACEA	P30406 macaca fasc
٠,	4.24	91.6	110	_	INS_RABIT	P01311 oryctolagus
۰	417	1.05	110		INS_CANFA	P01321 canis famil
7	413	89.5	110	-	INS_SPETR	O91xi3 spermophilu
æ	394	85.1	96	~	INS_HORSE	P01310 equus cabai
6	7 55	.	110	-	INS2_MOUSE	P01326 mus musculu
10	394	85.1	110	-	INS2_RAT	P01323 rattus norv
11	392		108	-	INS_AOTIR	P10604 actus trivi
12	392	84.7	110	~	INS_CR1LO	P61313 cricetulus
13	385	83.2	110	-	INSI_RAT	P01322 rattus norv
14	383	82.7	108	-	DI4_SNI	
15	377	81.4	110	-	INS_PSAOR	C62587 psammomys o
16	366.5	79.2	105	~	INS_BOVIN	
17	366	79.0	108	~	INS1_MOUSE	PO1325 mus musculu
18	362.5	78.3	105	-	INS_SHEEP	P01318 ovis aries
19	334.5	72.2	108	-	INS_RODSP	
20	314	67.8	110	-	INS_CAVPO	
21	277.5	6.65	109	-	INS_OCTDE	P:7715 octodon deq
22	276.5	59.7	103	-	INS_SELRF	P51463 selasphorus
23	265.5	57.3	106	_	INS2_XENLA	P12707 xenopus lae
24	265.5	57.3	107	-	INS_CHICK	P01332 gallus gall
25	262.5	26.7	106	~	INS1_XENLA	
56		55.4	51	-	INS_BALPH	P01312 balaenopter
27		55.4	51	٦	INS_ELEMA	
28	•	55.4	81	~	INS_ANAPL	P01333 anas platyr
29		54.3	51	٦	INS_ACOCA	P01324 acomys cahi
30	246.5	53.2	51	-	INS_BALBO	P01314 balaenopter
31	246.5	53.2	51	~	INS_CAMDR	P01320 camelus dro
32	246.5	53.2	51	~	INS_CAPHI	P01319 capra hircu
33	245.5	53.0	51	7	INS_FELCA	P06306 felis silve

P18109 didelphis m	P07454 anser anser	09w7r2 verasper mo P01328 bystrix cri	P31887 trachemys s	P81423 acipenser g	P01341 lophius pis	Q9tqy7 ornithorhyn	P04667 oncorhynchu	P13190 callorhynch	P81025 oreochromis
INS_DIDMA	INS_ANSAN	INS_VERMO	INS_TRASC	INS_ACIGU	INS_LOPPI	INS_ORNAN	INS_ONCKE	INS_CALMI	INS_ORENI
				-	۳.	_	-	_	_
5.1	515	115	51	52	116	5	105	\$	113
51.7	50.0	49.2 2.1	49.1	48.6	47.8	47.2	47.2	46.8	46.4
239.5	231.5	228 227.5	227.5	225	221.5	218.5	218.5	216.5	215
3.5	36	37	38	4 0	41	42	43	4	45

ALIGNMENTS

HESULT INSTITUTAN STANDARD. BET: 110 AA. POLSINE PRESULT INSTITUTAN STANDARD. BET: 110 AA. POLSINE PRESULT INSTITUTAN STANDARD. BET: 110 AA. POLSINE PRESULT IN LAST STANDARD. BET: 110 AA. POLSINE PRESULT OF THE LAST STANDARD. BET: 110 AA. BAT: 110 AA.

Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C., Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J., Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunarature P.H., Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W., Villalon D.K., Muzny D.M., Sodergren F.J., Lu X., Gibbs R.A., Faney J., Helton E., Ketteman M., Hadan A., Rodriques S., Sanchez A., Whiting M., Madan A., Young A.C., Shevchen, Y., Bouffard G.G., Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C., Butterfield Y.S.N., Krzywinski M.L., Skalska U., Smailus D.E., Butterfield Y.S.N., Krzywinski M.L., Skalska U., Smailus D.E., Goneralion and initial analysis of more than 15,000 full-length human and mouse cDNA sequences. MEDLINE-73161261; PubMed-469853; Geiger R., Jasqer G., Keonig W., Treuth ...; a factor R., Lasqer G., Keonig W., Treuth ...; of propriets of peptides with the properties of human proinsulin C peptides (hC peptide). I. Scheme for the synthesis and preparation of the sequence 28-31 of human proinsulin C peptide."; Fajardy I.L., Weill J.J., Stuckens C.C., Danze P.M.P., "Description of a novel RFLP diallelic polymorphism (*127 Bsq1 C/G) Within Uc 5' region of insulin gene."; Geiger R., Volk A.:
"Synthesis of peptides with the properties of human proinsuiln C
peptides (for peptide). 3. Synthesis of the sequences 14-17 and 9-13
chem. Ber. 106:199-205(1973). $\mathrm{D}(F_{\mathrm{c},\mathrm{c}})$ damino acid sequence of Sieber P., Kamber B., Hartmann A., Joell A., Riniker B., Rittel W. Trotal Synthesis of human insulin under directed formation of the disability board. "Studies on polypeptides. IV. The synthesis of C-peptide of Buman MEDLINE-84016053: PubMed-6312455; Haneda M., Chan S.J., Kwok S.C.M., Rubenstein A.H., Steiner D.F.; SEQUENCE OF 57-87.

MEDLINE-71257722; PubMed-5560404;

KO A., Smyth D.G., Markussen J., Sundby i.;

"The amino acid sequence of the C peptide of human proinsulin.";

Eur. 3. Biochem. 20:190-199(1971). databases. Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002) Hoppe-Seyler's Z. Physiol. Chem. 354:659-672(1973) Submitted (JUL-1998) to the EMBL/Geosank/ Nicol D.S B.W., Smith L.F.; "Aminoracid sequence of human insulin "; Nature 187:483-485(1960). SECUENCE OF 57-67.
MEDILINE-71116410; PubMed*5101771;
Oyer P.E., Cho S., Peterson J.D., Stei:
*Studies on human proinsulin, Isolation disulfide bonds."; Helv. Chim. Acta 57:2617-2621(1974) the human pancreatic C-peptide."; J. Biol. Chem. 246:1375-1386(1971). MEDITINE-7507727; PubMed-4443293; SYNTHESIS OF 57-87, MEDLINE-75040007; PubMed-4803504; Naithani V.K.; SYNTHESIS OF 65-69 AND 70-73 MEDLINE-73161263; PubMed-469855; SEQUENCE OF 25-54 AND 90 11.1 Chem. Ber. 106:188-192(1973) VARIANT LOS ANGELES SER-48 SECUENCE OF 1-59 FROM N.A. SYNTHESIS OF 84-87 TISSUE-Blood; proinsulin SYNTHESTS

MEDLINES-87058122; PubMed-3537031; Sakura H.; Shilm is a diabetic patient, Characterization of the mutant insulis A3 (4931->Leu) isolated from the pancreas."; J. Clin. Invest. 78:1666-1672(1986). Hua Q.-X., Weiss M.A.; "Toward the solution structure of human insulin; sequential 2D iH NMR assignment of a des-pentapoptide analoque and comparison with crystal structure."; Hua O. X., Weiss M.A., "Comparative 2D NMR studies of human insulin and des pentapeptide insulin: sequential resonance assignment and implications for protein Biochemistry 30:5505-5515(1991). Char S.J., Seino S., Gruppuso P.A., Schwartz R., Steiner D.F.;
*A mutation in the B chain coding requin associated with impaired proinsulin conversion in a family with hyperproinsulinemia.";
Proc. Natl. Acad. Sci. U.S.A. 84:2194-2197(1987) Hua Q. X. Weiss M.A.:
"Two-dimensional NMR studies of Des.(B26.B30).insulin: sequence"Two-dimensional NMR studies of Security resonance assignments and effects of solvent composition.";
Biochim. Biophys. Acta IQ78:101.110([991]. "Studies on mutant human insulin genes: identification and sequence analysis of a gene encoding [SerB24]insulic."; Proc. Natl. Acad. Sci. U.S.A. 80:6166-6370(1981). WARIANT HIS-89.
MEDILINE-90317021: PubMcd-2196279.
MEDILINE-90317021: PubMcd-2196279.
Barbetti F., Raben N., Radowaki T., Cama A., Accili D., Gabbay K.H.,
Barbetti F., Paben N., Radowaki T., Roth J.;
Two unrelated patients with familial hyperproinsulinemia due to a
mutation substituting histidine for arginine at position 65 in the
Proinsulin molecule: identification of the mutation by direct
sequencing of genomic deoxyribonucleic acid amplified by polymerase MEDIINE-\$2291307; PubMrd-1601997;
Yano H., Kitano N., Morimoto M., Polonsky K.S., Imura H., Seino Y.;
"A novel point mutation in the human insulin gene giving rise to hyperproinsulinemia (proinsulin Kyoto).";
J. Clin. Invest. 89:1902-1907(1992). Shoelson S., Fickova M., Haneda M., Nahum A., Musso G., Kaiser E. Rubenstein A.H., Tager H.; "Identification of a mutant human insulin predicted to contain a MEDITIE-85261996; PubMed-4019786; Shibasaki Y., Kawakami T., Kanazawa Y., Akanuma Y., Takaku F.; "Postranslational citeavage of proinsulin is blocked by a point mutation in tamilial hyperproinsulinemia."; serine-for-phenylalanine substitution.";
Proc. Natl. Acad. Sci. U.S.A. 80:7390-7394(1983). SER-48 AND CHICAGO LEG-49 Clin. Endocrinol. Metab. 71:164-169(1990). VARÍANTS LOS ANGELES SER-48 AND CI MEDLJINE-84170233: PubMed-6424111; Biochemistry 29:10545-10555(1990). MEDI.INE #87175640; Pubmcd 3470784; MEDLINE-91104966; PutbMed-2271664; STRUCTURE BY NMR. MEDLINE-91242467; Pubmed*2036420; STRUCTURE BY NMR, MEDLINE-91265527; PubMed-1646635; VARIANT PROVIDENCE ASP 34. VARIANI WAKAYAMA LEU 92. VARIANT KYOTO LEU-89 chain reaction."; STRUCTURE BY NMR. VAKIANT HIS-89.

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the SWISS Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. Here are no restrictions on its use by non-profit institutions as low as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement ("We http://www.isb-sib.ch/announce/or send an umail to license@isb-sib.ch/
                                                                                                        0
                                                                                                                                                   1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      - I FUNTION: INSULIN DECREASES BLOOD CHICOSE CONCENTRATION, IT INCREASES CELL PERMEABILITY TO MONE ACCURATIOES, AMINE ACIDS AND FATTY ACIDS. IT ACCELERATES GLYPONY 1S, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.

SURFMIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FRGSITE: PSG0262; iNSULIN; 1.
Insulin lamily; Hormone: Glucose metabolism; Signal; 3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota: Metazóa: Chordatá, Graniuta: Vertebrata: Euroleistosi.
Mammalía: Euthería; Primates; Catarrhíi.); Hominidae: Pan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ð
                                                                                                     .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-92219953: PubMed-1560757; Seino S., Beil G.L., Li W., Squences of primate insulin genes support the hypothesis of slower rate of molecular evolution in humans and apes than in
                                 100.0%: Score 463; DB 1; Length 110; 100.0%: Pred. No. 9.2c-43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SÜBCELLÜLLAR LOCATION: Secreted.
SIMILARITY: BELONGS TO THE INSULIN GEYRELAXIN FAMILY.
                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12025 MW; 41EB8DF79837CEF5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 463; DB 1;
100.0%; Pred. No. 9.2e-43;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last segmence update)
15-SEP-2003 (Rel. 42, Last annotation update)
Insulia precutsor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INSULIN B - IAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   110 AA
                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INSULIN A
INTERCHAIN
                                                                                                                                                                                                                                                                                                          NTERCHAIN
                                                                                                                                                                                                                                                                        61 SLOKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PEPTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro: JPRU04825; Ins/IGF/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mol. Biol. Evol. 9:193-203(1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pan trodiodytes (Chimpanzee).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMHL: X61089; CAA43403.1; · .
FIR; A42179; A12179;
FOB, TEFE; 29 MAR-00.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRINTS: PRODZ77; INSULINB.
SMART: SM00078; IIGF; 1.
                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ptam; PF00049; Insulin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       110
96
109
100
Ouery Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SECUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_Tax1D-9598;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INS_PANTR
P30410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SHOUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     monkeys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STUNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                       INS_PANTR
                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 2
                                                                                                                                                                                                                                                                        ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOT THE FET THE PROPERTY OF TH
```

ö

Gaps

ö

Indels

Conservative

Best Local Similarity

:98

Matches

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license discement (See hitp://www.isb-sib.ch/announce/or send an email to license isb-sib.ch).
1 FVNQH: CGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                  25 FVNQHLGGSHLVFALYLVCGERGFFYTPKTRRFAEDLQVGQVELGGGPGAGSLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1. BIOL. Chem. 247:4866-4871(1972).

-1- FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT INCREASES CELL PERMEABLILITY TO MONOSACCHARIDES, AMINO ACIDS AND FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.

-1- SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Peterson J.D., Nehrlich S., Oyer P.E., Steiner D.F.;
"Determination of the amino acid sequence of the monkey, sheep, and
dog proinsulin C-peptides by a semi-micro Edman degradation
                                                                                                                                                                                                                                                                                                                      Carcopithecus acthiops (Green monkey) (Grivel).
Eskaryota: Metazoa: Chordata; Cramiala: Verrebrusa; Eureleostomi;
Mammasia: Eutheria; Primates: Catarrhini; Cerecpithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
MEDLINE-92219953; PubMed-1560757;
Seino S., Bell G.I., Li W.;
"Sequences of primate insulin genes support the hypothesis of sequences of molecular evolution in humans and apes than in slower rate of molecular evolution in humans and apes than in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULLIDE BONDS.
-!- SUBCELLULAR LOCATION: Secreted.
-!- SIMILARITY: BELONGS TO THE INSULIN/IGE/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12019 MW; 95A1F54BE7B247F9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Insulin family: Hormone; Glucose metabolism; Signal.
                                                                                                                                                                                            INS_CERAE STANDARD: PRT; 110 AA. P30407; P01309; TO 01-AFR-1993 (Rel. 25, Created) 01-AFR-1993 (Rel. 25, Last sequence update) 01-FEB-1996 (Rel. 33, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C PEPTIDE.
INSULIN A CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INSULIN B CHAIN
                                                                                          SLOKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INTERCHAIN
                                                                     61 SLQKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro: IPRO04825; Ins/IGF/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-72258016; PubMed-4626369;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mol. Biol. Evol. 9:193-203(1992).
                                                                                                                                                                                                                                                                                                                                                                         Cercopithecinae: Percopithecas.
NCbi_faxiD=95st;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SMART: SM00078; ILGF; L. PROSITE: PS00262; INSULIN: L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; X61092; CAA43405.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00649; Insulin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                110
96
109
100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR, H42179, B42179,
HSSP, P01308: Arto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         110 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 57-87.
                                                                                                                                                                                                                                                                                      Insulin precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       procedure.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          monkeys.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIGNAL
                              qq
                                                                     ô
                                                                                                       g
```

ò q ò

0

Gaps

Indels

... ...

```
98.5%;
98.8%;
           Best Local Similarity
 Ouery Match
```

CHAIN

```
INSULIN A CHAIN.
     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HISSP, PO1308: ITYM.
InterPro: IPRO04825: Ins/IGF/relax.
Pfam. PF00049; Insulin: 1.
PROSITE: PS00262: INSULN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Biol. Chem. 269:8445-8454,1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-66160119; PubMed-5949593;
  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 25-54 AND 90-110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; UC3610; AAA19033.1; -.
EMBL; M61153; AAA17540.1; -.
85; Conservative
                                                                                                                                                                                                                                                                                                                                             STANDARD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24
54
87
110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                    21-JUL-1986 (Rel.
01-FEB-1996 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INRB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         insulin precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                01-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Smith L.F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR; A53438
                                                                                                                                                                                                                                                                                                                                          INS_RABIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    celis.
Matches
                                                                                                g
                                                                                                                                                          ŝ
                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                PARTIE STANDORNE STANDAR STAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EME, outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities a license agreement (see http://www.isb-sib.ch/anncunce/or send in email to license@isb.sib.ch).
                                                                    0
                                                                                                              1 FVNQHLCGSHLVBALYLVGGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "The nucleotide sequence of cDNA coding for preproinsulin from the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AND GLYCOGEN SYNTHESIS IN LIVER.

F. HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION IT
INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACTIVE AN
PATTY ACIDS: IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Macora lascicularis (Crab eather a mosta) (Symioshous cores)
Bukaryota, Metazoa, Chordali, Cram alar Vortokrala, enfoloseiam
Mamaalia, Butheria, Primates, Catarchica, Cercepillaceradae,
Cercepilmenmae, Maraca,
                                                                    ..
           98.5%; Score 456; iB 2; Length 110; 98.8%; Pred. No. 5.2e-42; ive 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 456: DB 1; Length 110;
Pred. No. 5.2e-42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SURFELLULAR LOCATION: Secreted.
SIMICARITY: BELONGS TO THE INSULINZIGEZRELAXIN FAMILY.
                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         [1]
SEQUENCE FROM N.A.
MENLINE 8:080474; PubMed-6184262;
Metekam W., Groneberg J., Leineweber M., Wengenmayer F.,
Winnacker E.-[..;
Minnacker E.-[..;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11991 MW; 83C6E33A80A420F9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRINTS: PRO0277: INSULINE.
SMART: SMUOG7#: ILGF: 1.
PROSITE: PSUU262; INSULIN: 1.
Insulic family: Hormone: Glucose metakolism: Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-AGG-1987 (Rel. 05, Last sequence update)
01-FEB-1906 (Rel. 33, Last annotation appare)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INSULIN B C' AIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INSULIN A CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                            110 A
                                                                                                                                                                                                                                                  SLOKRGIVEQCOTSICSLYQUENYON 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INTERCHAIN.
                                                                                                                                                                                                                       61 SEQREGIVEOCCISICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEPTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR: JQU178; JQ0178.
HSSP: PU1308: 1A1G.
InterPro: IPR004825; Ins/IGF/relax.
                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                P30406, P01309;
21 JUL-1986 (Rel. 01, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 primate Macaca fascicularis.";
Gene 19:179-183(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; J00336; AAA36849.1; -.
PIR: JQ0178; JQ0178.
                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF05049; Insulin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISHLFIDE BONDS
                                      Best Local Similarity
Matches 85; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                110 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Insulin precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_Tax1D=9541;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT
                                                                                                                                                                                                                                                                                                                                                                                                          INS_MACEA
                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SECUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIGNAL
```

RESULT 4

INS_MACFA

IN 12 JUJUS

AC P3040

DT 12 JUJUS

DT 13 -AC

CON MACHO

REA MICHOR

REA DISULE

```
This SWISS-PROT entry is copyright, it is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb.sib.ch/announce/or send an email to licensevisb-sib.ch).
1 FVNOHLCHSHLVEALYLVCGERGFFYTPKTRREAEDLOVGQVELGGGFGAGSLGPLALEG 60
                                         *Insulin gene expression and insulin synthesis in mammalian neuronal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.
SUBGNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Orycto)aqus cuniculus (Rabbit).
Rekaryctus Metavua, Chordata, Craniata, Vertetrata, Euteleostomi;
Mammalia: But heria; Laqumorpha, Leporiuad; Uryctolagus,
NYRT 19816-986.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 56-110 FROM N.A.
SEQUENCE S.J., CURLOSPI L.R., Devaskar S.U.;
Glddings S.J., Curlospi L.R., Devaskar S.U.;
Submitted (APR-1991) to the EMBL/GenBank/Dibd. databases.
III. FUNCTION INCREASES BLOOD GLOCOSE CONCENTRATION. IT
INCREASES CELL PERMEABILITY TO MOUNACHE DES. AMAING ACIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-9417923U; PutbMod-813257];
Devaskar S.U., Giddings S.U., Rajakumar P.A., Carnaghi L.R.,
Menon R.K., Zahm D.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Species variation in the amino acid sequence of insulin."; Am. J. Mcd. 40:562-666(1966).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBCELLULAR LOCATION: Secreted.
SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Insulin family; Hormone: Glucose metabolism; Signal.
SIGNAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Rel. 31, Created)
(Rel. 33, Last sequence update)
(Rel. 34, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INSULIN B CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                           110 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-New Zealand white: TISSUE Pancieds:
                                                                                                                                                                                                  61 SLQKRGIVEQCCTSICSLYQLENYCN 86
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Hioinformatics and the EMBL outstation. The European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as iong as its content is in no way modified and this statement is not removed. Usage by and for commercial exities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                      1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                       84
                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota: Metazoa; Chordata; Craniata Vertebrata; Euteleostomi;
Mammalia; Eutheria: Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                         .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
MEDLINE:83109071; PubMed-6296142;
KWOK S.C.M., Chan S.J., Steiner D.F.;
Cloning and nucleotide sequence analysis of the dog insulin groded amino acid sequence of canine preproinsulin predicts an additional C-peptide fragment.",
J. Riol. Chem. 258:2357-2363(1983).
                                                                                                                                                                                 Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         !- SIMILARITY: BELONGS TO THE INSULINZIGE/RELAXIN FAMILY.
                                                                                                                                                                                                                                      Indels
                                                                                        E -> Y (IN REF. 3).
82D2975B85D77FA8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Insulin family; Hormone; Glucose metabolism; Signal.
                                                                                                                                           91.6%; Score 424; DB 1; Le 90.7%; Pred. No. 1.4e-38; Wematches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-38L 1986 (Rel. 31, Created)
21-38L-1986 (Rel. 31, East Sequence .pulle)
61-FEB-1996 (Rel. 33, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INSULIN B CHAIN
           INTERCHAIN
                                   INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                       61 SLOKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSSP; P01317; lAPH.
InterPro; IPR004825; Ins/IGF/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              !- SUBCELLULAR LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SECUENCE OF 25:54 AND 90-110,
MEDLINE-66160119; PubMed-5949593;
Smith L.F.;
31 96 IN
43 109 IN
95 100
83 83 E
110 AA; 11838 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE: PS00262; INSULIN: 1.
                                                                                                                                                            Ouery Match
Best Local Similarity 90.7#
Marches 78; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; V00179; CAA23475.1;
PIR: A92413; IPDG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00049; Insulin;
SMART: SM00078; IlGF; l.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Canis iamiliaris (Dog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=9615;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INS_CANEA
DISULFID
DISULFID
DISULFID
CONFLICT
                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESUL! 6
INS_CANFA
                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PACE TO THE PROPERTY OF THE PROPERTY OF THE PACE TO TH
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit, institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ish-sib.ch/announce/or send an email to license@ibs-sib.ch).
                                                                                                                                                                      9
                                                                                                                                                                                                 84
                                                                                                                                                                                      25 FVNQHLCGSHLVEALYLVCGERGFFYTPKARREVENLQVRDVELAGAPGEGGLQPLALEG
                                                                                                                                                                    1 FVNQHI.CGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVEI.GGGPGAGSLQPLALEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tredrea M.M., Buck M.J., Guhaniyodi J., Squire T.L., Andrews M.T.;

"Regulation of PDK4 expression in a hibernating mammal.";
Submitted (JUN-2001) to the "MBL/Genbank/DDBJ databases.

-!- FUNCTION: INSULIN DECREASES BLOOD GILGOSE CONCENTRATION. IT
INCREASES CELL PERMEAFILITY TO MONOSACCHARIDES, AMINO ACIDS AND
FATTY ACCELEMENTES CIYCOLNSIS, THE PENTOSE PHOSPHATE
CYCLE, AND GLYCOXEN SYNTHESIS IN LIVER.

-!- SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                          Spermophilus tridecemlineatus (Thirteen-lined ground squirrel).
Eukaryota: Metazoa: Chordata; Craniata: Vertebrata; Euteleostomi;
Mammalia: Euthoria; Rodentia; Sciuroquathi; Sciuridae; Sciurinae;
                                                                                                                                        ..
                                                                                                          Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -!- SUBCELLULAR LOCATION: Secreted.
-!- SIMILARITY: BELONGS TO THE INSULIN/IGE/RELAXIN FAMILY.
                                                                                                                                      8; Indels
87 C PEPTIDE.
110 INSULIN A CHAIN.
96 INTERCHAIN.
109 INTERCHAIN.
100 INTERCHAIN.
12190 MW; A574791864A4FB98 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INTERCHAIN (BY SIMILARITY)
INTERCHAIN (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BY SIMILARITY.
4511768D6622BEE5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insulin family: Hormone; Glucose metabolism; Signal.
                                                                                                        Score 417; DB 1;
Pred. No. 7.7e-38;
                                                                                                                                                                                                                                                                                                                                                                15-SEP-2003 (kci. 42, Created)
15-SEP-2003 (kcl. 42, Last sequence update)
15-SEP-2003 (kcl. 42, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INSULIN B CHAIN.
C PEPTIDE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INSULIN A CHAIN.
                                                                                                                                        1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BY SIMILARITY
                                                                                                                                                                                                                                             61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR004825; Ins/IGF/relax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; AY038604; AAK72558.1; -.
HSSP; P01308; 1LNP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100 E
                                                                                                        90.1%;
89.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00049; insulin; 1.
PRINTS; PR00277; INSULINB.
                                                                                                                        Best Local Similarity 89.5
Matches 77; Conservative
                                                                                                                                                                                                                                                                                                                                        STANDARD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    54
54
87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SMART; SM00078: 11GF;
 57
90
31
43
110 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31
43 1
95 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFIDE RONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                               Insulin precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCB1_TaxID-43179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE-Pancreas;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Spermophilus
                                                                                                                                                                                                                                                                                                                                     INS SPETE
               CHAIN
DISULFID
DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
                                                                          SEQUENCE
                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
PROPEP
 PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                      INS_SPETE
                                                                                                                                                                                                                                                                                                      RESULT ?
 FT
FT
FT
FT
SO
                                                                                                                                                                                               qq
                                                                                                                                                                                                                             ó
```

61 SLOKRGIVEQCCTSICSLYQLENYCN 86

ò

```
o;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                         1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSTQPLALEG 60
                                                                      1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVCQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SUBCELLULAR LOCATION: Secreted.
-!- SIMILARITY: BELONGS TO THE INSULINTIGE/RELAXIN FAMILY.
-!- CAUTION: X'S AT POSITIONS 31-32 AND 64-65 REPRESENT PAIRED HASIC RESIDIES ASSUMED BY HOMOLOGY TO BE PRESENT IN THE PRECURSOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tager H.S., Steiner D.F.;
"Primary structures of the proinsulin connecting peptides of the rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BIOL Chem. 247:7936-7940(1972).
PUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT
INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACIOS AND
FATTY ACTIOS. IT ACCELERATES GLYCGLYSIS, THE PENTOSE PHOSPHATE
CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.
SUBGNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                         Eukaryota, Motazoa, Chordata, Cranista, Periobiata, Bureleostomi,
Mammalia, Eufheria, Perissodactyla, Equilos, Equus.
                               0
Score 413; DB 1; Length 110;
Pred. No. 2e-37;
3; Mismatches 6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 394; DB 1; Longth 86;
Pred. No. 1.7e+35;
1; Mismatches 12; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A3E1E822711HDB45 CRC54;
                                                                                                                                                                                                                                        21-JHE-1986 (Rel. 01, Created)
21-JEL-1986 (Rel. 01, Last Sequence update)
15-JEL-1999 (Rel. 38, Last annotation, update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insulin family; Hormone; Glucose metabolism. CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INSULIN A CHAIN.
                                                                                                                                                                                                                86 AA
                                                                                                                                                                                                                                                                                                                                                                                              Harris J.L., Sanger F., Naughton M.A., *Species differences in insulin.*; Arch. Riochem. Blophys. 65:427-438(1956)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INTERCHAIN
                                                                                                                               C PEPTIOS.
                                                                                                               61 SLQKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIR: A01580; IPHO.
HSSP; P01317; 1APH.
InterPro; IPR004825; Ins/IGF/relax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE 73061498; PubMed-4640931;
Query Match
Best Local Similarity 89.5%;
Matches 77; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PS00262; INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9142 MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84.98;
                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 1-30 AND 56-86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 84.9
Matches 73: Conservative
                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Plam; PF60049; Insulin;
SMART; SM00678; IIGF; 1.
                                                                                                                                                                                                                                                                                                               Equus cabalius (Borse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63
72
72
85
76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DISTURIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 33-63.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86 AA:
                                                                                                                                                                                                                                                                                     Insuling precursor
                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID-9796;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and the horse.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE
                                                                                                                                                                                                               INS_HORSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              J. Bioi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                    RESULT 8
INS_HORSE
                                                                                  g
                                                                                                                                        QQ
                                                                                                               ò
                                                                                                                                                                                                                            ô
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as lond as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb.sib.ch/announce/or send an email to license@isb.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Buenzii H.F., Glatchaar B., Kunz P., Muelhaupt E., Humbel R.E.;
*Amino acid sequence of the two insulins from mouse (Maus musculus).":
*Amino acid sequence of the two insulins from mouse (Maus musculus).":
*Physiol. Chem. 1831451.458(1972).
**INCRIDA: INSULIND DECREASES BLOOD GLUCOSE CONCENTRATION. IT
**INCREASES CHIL PERMEABILITY TO MONSCACHARIDES. AMINO ACIDS AND
**FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE
**CYCLE, AND GLYCOGEN SYMTHESIS IN LIVER.
**CYCLE, AND GLYCOGEN SYMTHESIS IN LIVER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam: PF00049; Insulin; 1.
SMART: SM00078; IlGF: 1.
PROSITE; PS00262; INSULIN; 1.
Insulin family; Horwone; Glucose metabolism; Signal; Multigene family.
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sawa T., Ohqaku S., Morioka H., Yano S., Moreular cloning and DNA sequence analysis of preproinsulin genes in the NOW mouse, an animal model of human non-obese, non-insulin-dependent diabetes mellius.";
J. Mol. Endocrinol. 5:61-67(1990).
                                                                                                                                                                                                                                        Mus musculus (Mouse).
Rekaryota: Metazoa: Chordata; Craniata: Vertenzata: Euteleostomi:
Mammalia; Eutheria: Rodentia; Sciuroquathii, Muridae: Murinae; Mus
NÇBI_TaxiD=10090:
                                                                                                                                                                                                                                                                                                                                                                     Wentworth B.M., Schaefer L.K., VillarKearoff L., Chirawin J.M.: "Characterization of the two monalietic acaes encoding mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -i- SUBCELLULAR LOCATION: Secretod.
-i- SIMILARITY: BELANGS TO THE INSULINZIBEZELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MGD: MGI:96573: Insc.
GO: GO:0000187: Practivation of MAPK; IDA.
GO: GO:0042325: Prrequiation of phosphorylation: IDA.
InterPro: IPR004825: Ins/IGF/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INSULIN 2 B CHAIN.
INSULIN 2 C PEPTID
INSULIN 2 A CHAIN.
                                                                                                                                            21-JUL-1986 (Rel. 01, Created)
13-ANG-1987 (Rel. 05, Last sequence uptate)
16-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                           110 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INTERCHAIN.
             86
61 PQOXXGIVEQCCTGICSLYQLENYCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-72189455; PubMed-5063718;
                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
MEDITNE-87169768: PubMed 3104603;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE 96372989; PubMed-2397023;
                                                                                                                                                                                                                                                                                                                                                                                                                              Mot. Evol. 23:365-312(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 25-54 AND 90-110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL: X04724; CAA28433.1; -.
                                                                                                           STANDARD;
                                                                                                                                                                                                      Insulin 2 precursor.
INS2 OR INS-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DISULFIDE BONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR: A26342; INMS2.
HSSP; P01317; IAPH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE PROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                            prepresusatin.":
                                                                                                           INS2_MOUSE
P01326;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-NON,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROPEP
                                                                                         INS2_MOUSE
             a
```

us-09-423-100-4.rsp

```
INS_AOTTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DISULFID
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ô
                                                                                                                            0
                                                                                                                                                          1 FVNQHI.CGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPCAGSLQPIALEG 60
                                                                                                                                                                                                       84
                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Raffus norvegicus (Rat).
Eukāryotā: Metazoa: Chordata: Craniatu Virtebrata: Euteleostomi;
Mammalia: Eutheria: Rodentia: Sciuroq: -:: Muridae; Murinae: Raffus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-Spraque-Dawley, TISSUE-Liver,
MEDLINE-80045015; PubMed-498284;
Lomedico P., Rosenthal N., Efstratiadi: A., Gilbert W., Kolodner R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "The structure and evolution of the two nomailelic rat preprofesuild
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tager H.S., Steiner D.F.; Primary structures of the proinsulin connecting peptides of the rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Steiner D.F., Clark J.L., Nolan C., Rubenstein A.H., Margoliash E.,
Aten B., Oyer P.E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDINE-86510882; Pubmed-2427930;
Scares M.B., Schin E., Henderson A., Karathanasis S.K., Cate R.,
Zeitlin S., Chirqwin J., Efstratiadis A.;
*RNA-mediated gene duplication: the rat preproinsulin I gene is
                                                                                                                            .
0
                                                                                   Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE 80240379; PųbMed-6249167;
Lomedico P.T., Rosenthal N., Kolodner R., Elstratiadis A.,
                                                    85.1%; Score 394; DB 1; Length 11x
84.9%; Pred. No. 2.20-35;
84.9%; Pred. No. 2.20-35;
                                       12364 MW; 3554C8803D24FDAD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Markussen J., Sundby F.;
"Rat-proinsulin C-peptides. Amino-acid sequences.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Aten B., Oyer P.E.; *Proinsulin and the biosynthesis of insulin."; Recent Prog. Horm. Res. 25:207-282(1969).
                                                                                                                                                                                                                                                                                                                                                                                                                   21 JUL-1986 (Rev. 01, Greated)
21 JUL-1986 (Rei - 01, fast sequence assate)
16-67T-2961 (Rel -40, fast appoint of 442e)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "The structure of rat preproinsulin genes.";
                                                                                                                                                                                                                                     INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ann. N.Y. Acad. Sci. 343:425-432(1980).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biol Chem. 247:7936-7940(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mol. Cell. Biol. 5:2090-2103(1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-70067613; PubMed-4311938;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-73061498: PubMed-4640931;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-72177385; PubMed-4554104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 57-87, AND REVISIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 25-54 AND 90-110
                                                                               Ouery Match 85.17
Best Local Similarity 84.9
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      functional retroposon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cell 18:545-558(1979).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Institu Z precursor.
43
95
110 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 57-87.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCB1_Tax10+10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INS2 OR INS-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gilbert W.;
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                1MS2_RAT
Pol 323;
                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rizard R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  genes.
                                                                                                                                                                                                                                                                                                                                             RESULT 10
                                                                                                                                                                                                                                                                                                                                                               INS2_RAT
  FT
                                                                                                                                                              ô
                                                                                                                                                                                                                                                                                                                                                                                                     A COOCCOS ON THE CONTRACT OF T
```

```
This SWISS-PROT entry is copyright. It is produced through a coilaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25 FVKQHLGGSHLVEALYLVGGEKGFFYTPMSRRFVE/DPQVAQLELG//3PGAGDLQTLAEV 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Insulin family: Hormone: Glucose metabolism: Signal: Multiqene family.
                 -!- FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACIDS AND FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.

-!- SUBDNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO DISULFIDE BONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Saimiri sciurcus (Common squirre) monkey).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrata; Eute:eostomi;
Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Aotinae; Aotus.
NCBL_Taxib-9505, 9521.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seino S., Steiner D.F., Bell G.I.;
"Sequence of a New World primate insulin having low biological
potency and immunoreactivity.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 110;
                                                                                                                                                                                            -!- SUBCELLULAR LOCATION: Socreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12339 MW; 3A626DA98C86F3CA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Actus trivirgatus (Night monkey) (fourcucculi), and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INSULIN 2 B CHAIN.
INSULIN 2 C PEPTIDE.
INSULIN 2 A CHAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    85.18; Score 394; DB 1; E
84.98; Pred; No. 2.28:35;
Wiematches 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Proc. Natl. Acad. Sci. U.S.A. 84:7423.7427(1987)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-30L-1989 (Rel. 11, Created)
01-30L-1989 (Rel. 11, Last sequence update)
16-0CT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       : FITTH: FITTHITH IT TO BE AROKRGIVDOCCTSICSLYQUENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 SLOKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro: :PRCC4825; Ins/IGF/relax.
Pfam: PF00049; insulin: 1.
SMART; SM00078; IIGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
Biochem. 25:153-162(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPECIES-A.trivirgatus;
MEDLINE-88041119; PubMed-3118367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL: M25583; AAA41440.1; JOINEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL: V01243: CAA24560.1; -: EMBL: JG0748: AAA41443.1; -: EMBL: M25585: AAA41445.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110
96
109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25
57
90
31
43
10 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR: M90789: LEREZ.
HSSP: P01317: TAPH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery ....
Best Local Similaries 73; (
```

```
This SWISS-PROT entry is copyright. It is produced through a coilaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Boropean Bioinformatics Institute. There are no restrictions on its use by non-prefit institutions as land as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a invense agreement (See http://www.isb-sib.ch/announce/or send an email to incosed;sp sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 FVNQHIGGSHLVBALYLVGERGFFYTPKTRREAEDIQVGQVELGGGBGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25 FVNQBL/CGSHLVEALXL/CGERGFFYTPKSRR/GVFI/VQVAQLELGGGFGADDL/JTALEV 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Buteleostomi,
Mammalia, Eutheria, Rodentia, Sciurognathi, Muridae, Murinae, Rattus.
                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                       Neelon F.A., Delcher H.K., Steinman H., Lebovitz H.E.;
"Structure of hamster insulin: comparison with a tumor insulin.";
Fed. Proc. 32:300-300(1973).
                                                                                                                                                                                                                                         FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT INCREASES CELL PERMEABILITY TO MONUSACCHARIDES, AMINO ACIDS AN FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. MEDLINE*8004503; MEDLINE*80045034; PubMed-498283; Cordell B. Bell G.L. Tischer E., Denoto F.M., Ullrich A., Pictet R.L., Rutter W.J., Goodman H.M.; Isolation and characterization of a cloned rat insulin gene.";
                                          "Sequence of a cDNA encoding Syrian hamster preproinsulin."; Diabetes 33:297-300(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84.7%; Score (92; DB 1; Length 110
84.9%; Pred. No. 4.5c 35;
wismatches 9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MW; 219E92B85A535CEC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gl. ose metabolism; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
16-XCT-2001 (Rei. 46, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INSULIN A CHAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INSULIN B CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 SLOKRGIVEQCCISICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Interpro: IPR004825; ins/IGF/relax.
Pfam; PF00049; Insulin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRC
                                                                                                                                                                                                                                                                                                                                                                                                                      SUBCELLULAR LOCATION: Secreted
               G.I., Sanchez-Pescador R.;
                                                                                                                               SEQUENCE OF 25-54 AND 90-110.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART; SM00078; 11GF; 1.
PROSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL: M26328; AAA37089.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24
54
87
11:0
96
109
12268 P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match

Bost Local Similarity 84.9
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Insulin tamily: Hormone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rattus norvegicus (Rat.).
                                                                                                                                                                                                                                                                                                                                                                                           DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              insulin 1 precursor.
INS1 OR INS-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   110 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSSP; F01308;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INS:_RAT
P01322;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROPER
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INS1_RAT
               NOTE THE TENENCE OF STANFORM AND THE PRESENCE OF STANFORM AND THE PRESENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ें
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMR, outstation the European Bioinformatics institute the European Bioinformatics institute the European Control of Statement is not as long as the control of the Manual This statement is not removed. Is not an above and this statement is not removed. Is not seen and the statement is not removed. Is not a connected or send an erail to licessee serverent (S. Mitp://www.sseetch.and.com/connected).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQFLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                             PECINE-91086593; PubMed-2263627;
Yu J. H., Fing J., Yalow R.S.:
"Isolation and amino acid sequences of squirrel monkey (Saimiri Sciurea) insulin and glucagon.";
Proc. Matl. Acad. Sci. U.S.A. 87:9766-9768(1990).
-! FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT INCHEASES CLL PERMEBILITY TO MONOSACCHARIDES, AMINO ACIDS AND FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTUSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN .IVER.
-! SUBUNIT: HETERODIMER OF A B CHAIN AND AND CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota, Metazoa: Chordata, Craniata: Vertebrata, Euteleostomi;
Mammalia; Eutheria; Rodentia: Sciurogu. i: Muridae, Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ~;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 168
                                                                                                                                                                                                                                                                                                                                                                                           -: SUBCELLUIAR LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      84.7%; Score 392; DB 1; Length 168
84.9%; Pred. No. 3.5x 35;
84.9%; Pred. No. 3.5x 35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11842 MW: 186988250099731F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C PEPTIDE.
INSULIN A CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1: ۸
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INTERCHAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 SLOKRGIVEQUOTSICSLYOLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSSP: FULLOB: 1HIS.
InterPro: 1PR004825; Ins/IGF/relax
Pfam: PF00049; Insulin: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P.K.
[2]
SEQUENCE UF 25-54 AND 88-108.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J02989: AAA35374.1: -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRINTS; PROG277; INSULINB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108
94
107
98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PIR: A39883; A39883.
                                                                                                                                                                                                                                                                                                                                                                            DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    108 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DISULETD
DISULETD
```

Query March

3 ð ŝ

SECUENCE

DISHLFID

CHAIN

CHAIN

EMHL

·;

Caps

: O

Length 110;

0

Gaps

; 0

DISULFID SEQUENCE DISULFID

```
1 FVNQHLGGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                               MEDLINE-89099318; PubMed-2905485;
Baker E.N., Blundell T.L., Cutfield J.F., Cutfield S.M., Dodson E.J.,
Dodson G.G., Crowtoot Hodgkin D.M., Hubbard R.E., Isaacs N.W.,
Feynolds C.D., Sakabe K., Sakabe N., Vijayan N.M.;
"The structure of 22n pig insulin crystals at 1.5.A resolution.";
Philos. Trans. R. Soc. Lond., B, Biol. Sci. 319:369-456(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Isaacs N.W., Agarwal K.C.;
"Experience with fast Fourier least squares in the refinement of the crystal structure of rhombohedral 2-zinc insulin at 1.5-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bukaryota, Metazca, Chordata, Craniatu, Vertebratu, Esteleostomi,
Narmalia, Botheria, Cetartiodaetyla, Saina, Saidae, Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 25-108.
MEDIJINE 6828645; PuthMed-5657063;
Chance R.E., Ellis R.M., Bromer W.W.;
"Poteine preinsulin. characterization and amino acid sequence.";
Science 161:165-167(1968).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Comparative sequence analysis of the INS 1GF2-H19 gene cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Amarger V., Nguyen M., Laere A.S., Braunschweig M., Nezer C.,
Georges M., Andersson L.:
Score 385; DB 1; Length 110;
Pred. No. 2e-34;
4; Mismatches 10; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X-KAY CRYSTALLOGRAPHY (1.9 ANGSTROMS).
Bundell T.L., Dodson G.G., Hodgkin D., Mercola D.,
"Insulin. The structure in the crystal and its reflection chemistry and biology."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Complete porcine preproins iin cDNA sequence.";
Submitted (MAY 1998) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-JUL-1986 (Rel. 01, Greated)
16-OCT-2001 (Rel. 40, Last Sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 138 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (JUL-1970) to the PIR data bank
                                                                                                                                                                                                                                                                                                             61 SLUKRGIVEQCCISICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X-RAY CRYSTALLOGRAPHY (1.5 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X-RAY CRYSTALLUGRAPHY (1.5 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Acta Crystailogr. A 34:782-791(1978).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Adv. Protein Chem. 26:279-402(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PKT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-Large white;
MEDLINE-22135958; PubMed-12140686;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mamm. Genome 13:388-398(2002).
       83.2%;
                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tuch B.E.;
                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Insulin premarsor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sus serrofa (Plu)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NORE_TRANSPOSES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INS_FIG
P01315; 097SJ5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REVISION TO 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         resolution.";
       Query Match
Best Local Simi
Matches 72; (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chance R.E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pigs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAMES AND CONTRACT TO THE ACCUSANCE AND CONTRACT AND CONT
                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                          ô
                                                                                                                                                                                                                                                                                                                                            gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as iong as its content, is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          use by non-profit institutions as ionq as its content, is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license*isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insulin tamily; Hormone; Glucose metabo ism; Signal: Multigene family.
                                                                                                                                                                                                                                The structure and evolution of the two nonallelic rat preprotesults
                                                                                                                                                             Lomedico P., Rosenthal N., Efstratiadis A., Gilbert W., Kolodner R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tager H.S., Stainer D.F., *Perimany Structures of the proinsulin connecting peptides of the ratand the horse. ^{\circ}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FUNCTION: INSULIN DECREASES BLACOD GLUCOSE CONCENTRATION, IT INCREASES CELL PERMERALLITY TO MONOSACCHARIDES, AMINO ACIDS AND FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.
SURCHLI: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .. Ethenstein A.H., Margollash
                                                                                                                                                                                                                                                                                                                                                                                                                                Lomedico P.T., Rosenthal N., Kolodner R., Efstratiadis A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY: BELONGS TO THE INSULIN/IGE/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     43 109 INTERCHAIN.
95 100
110 AA; 12420 MW; 51D606DA54AE3533 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INSULIN ) B CHAIN.
INSULIN 1 ' PEPTIDE.
INSULIN 1 A CHAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                54
87
110
96
100
```

Ë

```
This SWISS PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. Here are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            matics and the EMBL outstation
here are no restrictions on its
as its content as in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          use by non profit institutions as ion: as its content is in no way modified and this statement is not remov d. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license*isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                   ACTA CEYSTALLOGE. D 53:507-512(1997).

-!- FUNCTION: INSULIN DECREASES BEDOD GLUCOSE CONCENTRATION. IT INFRASES CELL PERMEABILITY TO MONOSACCHARRIDES, AMING ACTUS AND FATTY ACTOS. IT ACCELERATES GLYCOLYSIS, THE PENTICSE PHOSPEATE CYCLE, AND GLYCOGEN SYNTHESIS IN TYPE.
                                                                                                                                                                                                                                                                                         X-RAY CRYSTALLOCRAPHY (1.65 ANGSTRUMS).
Diao J.-S., Wan Z.-L., Chang W.-R., Liana D. C.;
Structure of monomeric porcine Desb1-B2 despentapeptide (B26-B30) insulin at 1.65-A resolution...?
Acta Crystallogr. D 53:507-512(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HETEROSTMER OF A POBATN AND AN A THAIN LINKED BY INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hormone: Glucose metabolism; Signal: 3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NoTE Issue 9 of April 2001;
WMM-"http://www.expasy.org/spotlight/articles/sptitu09.html"
                    Balschmidt P., Hansen F.B., Dodson E., Dodson G., Korber F.; "Structure of porcine insulin cocrystallized with clupeine 2."; Acta Crystallogr. B 47:975-986(1991).
                                                                                                                   X-RAY CRYSTALLOGRAPHY.
MEULINE-9122450; PubMed-2025410;
MEULINE-9122450; PubMed-2025410;
Badger J., Harris M.R., Reynolds C.D., Ethus A.C., Dodson E.J.,
Douson G.G., Morth A.C.T.
*Structure of the pig insulin dimer in the cubic crystal.";
Acia Crystallogr. B 47:127-136(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMILARITY: BELONGS TO THE INSULINZICEZHELAXIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11671 MW; CB4491B429858EBE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INSCLIN A CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INSCILIN E CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEPT:DE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DATABASE: NAME-Protein Spotlight;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMRL; AF464555; AAC77920.1; ALT_INIT. EMRL; AY044828; AA169550.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBCELLULAR LEGATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IPRG04825; Ins/IGF/relax
  MEDLINE-92126280; PubMed-1772633;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam: PFC0049; Insulin; 1.
SMART: SM00078: ILGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-JAN-96.
29-JAN-96.
16-JUN-97.
01-APR-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31 - JAN-94.
31 - JAN-94.
15 - OCT-91.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-0(T-91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29-JAN-96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16 FEB-99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28-JAN-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41NS; 09-JAN 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31-JUL-94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-0CT-91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-JAN-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DISTIFICE RONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  108 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE: PS00262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Insuiin tamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26
48
89
100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88
3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBUNIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2TC1:
1MPJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10E1;
1SDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.N.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1128;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . ZNI :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HEL.IX
HEL.IX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HELLX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PDB;
PDB;
PDB;
PDB;
PDB;
PDB;
PDB;
RAHARA RA
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bnoinformatics and the SWIL constation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial cutilies requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb sib.ch).
                            ä
                                                   i FVNQHLGGSHLVEALYLVGGERGFFYTPKTRREAEDLQVGOVELGGGPGAGSLQPLALEG 60
                                                                25 FVNQHLGGSHLVEALYINGGERGFFYTPKARREAENPQAGAVELGG-GLGGIQALALEG 82
                            2; Caps
                                                                                                                                                                                                                                                                                                                                                                                    CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.
SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
DISULFIDE BONDS.
                                                                                                                                                                                                                                                                                               Bukaryola, Metazoa, Chordata, Graniara, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Rodestia, Sciurognathi, Muridae, Gerbillinae,
Score 383; DB 1; Length 108;
Pred. No. 3.3e-34;
1; Mismatches 9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 377; DB 1; Length 110;
Pred. No. 1.5e-33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -:- SIMILARITY: BELONGS TO THE INSULIN/IGE/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INTERCHAIN (BY SIMILARITY).
INTERCHAIN (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A006738E20579CHU CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Giudose metabolismo Signal.

    Last sequence update)
    Last annotation apdate)

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INSULIN B CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INSULIN A CHAIN.
                          1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BY SIMILARITY
                                                                                                                  HITTI HITTITION 108

PPOKRGIVECCTSICSLYQLENYCN 108
                                                                                                     61 SLOKRGIVEOCCTSICSLYOLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C PEPTICE
                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR004825; Ins/IGF/relax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBCELLUIAR LOCATION: Secreted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ¥
                                                                                                                                                                                                                   , Treated)
82.78;
86.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00049; Insulis: 1.
PRINTS, PRO027; INSULINE.
SMART: SMO078; I.GF. 1.
PROSITE: PS00262: INSULINE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12324 MR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81.48;
81.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL: X98241; CAA66897.1; -. HSSP; P01308; 1A10.
                         74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Insulia tamily; Hormone:
                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96
96
109
100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25
57
90
31
43
95
Ouery Match
Best Local Similarity
Matches 74; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
                                                                                                                                                                                                                              01 NOV-1997 (Rel.
                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                   01-NOV-1997 (Rel.
                                                                                                                                                                                                                                             15-JUL-1998 (Rel.
                                                                                                                                                                                                                                                            Jusulia, predurson
                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID-48139;
                                                                                                                                                                                                                                                                                     Psarmomys obesus
                                                                                                                                                                                            INS_PSAOB
                                                                                                                                                                                                                                                                                                                          Psammomys.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHA:N
PROPEP
                                                                                                                                                                                                         062587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIGNAL
                                                                                                                                                                               INS_PSAOR
                                                                           a
                                                                                                   ò
                                                                                                                             q
```

Matches 70; Conservative 5; Mismatches 11; Indels 6; Gaps (Qy 1 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 60 ILITITITITITITITITITITITITITITITITITITI	0;	09	84			
Matches 77	Gaps	PLALEG	ALALEV			
Matches 77	0;	AGSTO	AGDLR			
Matches 77	Indels	SOVELGGGPG	oreregspo			
Matches 77	11;	EDLOVE	DDPOMF			
Matches 77	Mismatches	SFFYTPKTRREA	SFFYTPKFRRGV	NYCN 86	NYCN 11:	
Matches 77	5;	VCGERC	VCGER	LYOLE	LYOLE	
Matches 77	Conservative	VNQHLCGSHLVEALYL	VNOHLCGSHLVEALYL	LOKRGIVEOCCISICS	ROKRGIVEQCCTGICS	
Matches Qy Db	70;	F	25 F	61.8	. ¥ ⊈2.8	
	Matches	Qy	QQ	Οy	ĝ	

Search completed: September 15, 2003, 12:01:30 Job time : 9.01434 secs

```
086.281 dorilla qor
086.280 pongo pygma
0918q7 rana pipien
098ta7 osteoglossu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                098ta8 pantodon bio
090zyl hiodon alos
098tb0 chitala chi
09dde5 brachydanio
090zn4 catla catla
098tb1 catostomus
098tb1 ambloplites
062543 mus spretus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q8hxv2 pongc pygma
Q9lxi3 spermophilu
Q8wnw6 felis silve
                                                                   September 15, 2003, 11:54:30; Search time 33.5986 Seconds (without alignments) 660.520 Million ceit updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. is the number of results prodicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the U. all score distribution.
                                                                                                                                         1 FVNQHLCGSHLVEALYLVCG.... IVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Description
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                     830525 seqs. 258052604 residues
                                                                                                                                                                                                                                                                                      Minimum Match 0%
Maximum Match 160%
Listing first 45 summaries
                                                OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUMMAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09H281
09H280
091B07
098TA7
098TA8
090ZY1
098TB0
090DES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U91X13
OSWNW6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            098TA9
098TB1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    098TB2
062543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q8HXV2
                                                                                                                                                                   BLuSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sp_vertebrate:*
sp_unclassified:*
                                                                                                                                                                                                                                                                                                                                                                           sp_fungi:*
sp_human:*
sp_invertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sp_bacteriap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                     sp_organelie:*
                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 2666026300
                                                                                                                                                                                                                                                                                                                                                sp_archea:*
sp_bacteria:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sp_rvirus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sp_rodent:*
sp_virus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ouery
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                             sp_plant:*
                                                                                                                                                                                                                                                                                                                                                                                                              sp_mammul:•
                                                                                                                    US-09-423-100-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                 sp_phage: .
                                                                                                                                                                                                                                                                                                                                      SPTREMBL_23:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1110
1110
1110
655
657
1111
1110
1110
1110
1110
1110
1108
1108
1108
1108
                                                                                                                                                                                                                                                                                                                                                                                                                           sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                   8:
4:
10:
                                                                                                                                                                                                                                                                                       Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         246.5
235.5
230.5
222.5
219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    214.5
212.5
210.5
200.5
205.5
                                                                                                                    Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          413
488
442
342
                                                                                                                                                                    Scoring table:
                                                                                                                                            Sequence:
                                                                                                                                                                                                      Searched:
                                                                                                                                                                                                                                                                                                                                      Database
                                                                      Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
```

	O93607 paralichthy	073720 oreochromis	O42289 oreochromis	P79824 oreochromis		093527 paralichthy			093380 meleagris g	Q9yi57 acanthopagr	Q91443 squalus aca		Q91161 oncorhynchu	091476 salmo salar	C91475 salmo salar	Q91231 oncorhynchu	Q91162 oncorhynchu	Q91230 oncorhynchu	P81268 oncorhynchu	491965 oncorhynchu		U9psx5 paralichthy	U8jie4 brachydanio	·	USi9i4 ctenopharyn	Q90vv9 brachydanio	OSpwk2 carassius a	098sr6 megalobrama
062542	093607	073720	042289	P79824	057436	093527	00 x 060	O8AV14	083380	09Y157	091443	Q91AA0	091161	091476	091475	091231	091162	091230	P81268	091965	042336	05PSX5	08.11.64	09MY26	0919:4	6A060	Q9PWK2	098SR6
1	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	~		<u>~</u>	"··	£	53	~	; <u>.</u>	÷
36	159	182	182	182	185	186	207	132	153	185	210	62	116	117	145	149	155	161	168	. 188	. 8.	ري د د	717	106	:17	151	161	161
35.0	30.8	30.8	30.8	30.8	30.8	30.8	30.5	30.3	29.9	29.6	29.6	29.5	29.5	29.5	29.5	29.5	29.5	54.5	29.5	24.5	24.3					28.8		
162	142.5	142.5	\sim	\sim	142.5	142.5	141	140.5	138.5	137	137	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	145.5	1.5.5	3.5			133.5		
	œ	<u>о</u>	0	_	2	~	24	S	œ	7	6	6	0	_	~	~	=7	ıc.	ۍ	7	œ	£.	٠ ت	_	: >1	m		Ç

ALTGNMENTS

```
Eukaryota: Metuzoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pongo.
                                                                                                                                                                                                                                                                                                       ..
                                                                                                                                                                                                                                                                             100.0%; Score 463; DR 6; Length 110; 100.0%; Pred, No. 3.9e-47;
                                                                                                                                                                                SEQUENCE FROM N.A.
Stead J.D.H., Jeffreys A.J.;
Stead J.D.H., Jeffreys A.J.;
"Haplotype diversity at the insulin region.";
Submitted (JUL 2002) to the EMBL/GenBank/DDBJ databases.
EMBL: AY137503: AAN06937.1: -.
SEQUENCE 110 AA; 12038 MW; 22D2B42H94F520F8 CRC64:
                                                  Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                       0
                         110 AA
                                                                                                                                                                                                                                                                                       100.0%; Pred. mo.
                                                                                                                                                                                                                                                                                                                                                                                                    SLOKRGIVEOCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                      61 SLOKRGIVEQUOTSICSLYQLENYCN 86
                          PRT;
                                                                                                                    Pongo pygmaeus (orangutan).
                                                                                                                                                                                                                                                                                                       86; Conservative
                          PRELIMINARY:
                                                 01-MAR-2003 (TLEMHLJEL, 01-MAR-2003 (TREMBLrel, 01-MAR-2003 (TREMBLrel)
                                                                                                                                                                                                                                                                                            Best Local Similarity
                                                                                         Insulin precursor.
INS.
                                                                                                                                                          NCBI_TaxID=9600;
                                                                                                                                                                                                                                                                              Query Matich
                                        08HXV2;
                          O8HXV2
                                                                                                                                                                                                                                                                                                       Matches
RESULT 1
              Q8HXV2
                            a
                                                                                                                                                                                                                                                                                                                                                                                       ô
                                                                                                                                                                                                                                                                                                                                                                                                               g
```

0

1:0 AA

091X13 PRELIMINARY; PRT; 091X13; 01-DEC-2001 (TEMBLrel. 19, Created)

AC PT

RESULT 2 Q91X13 a

Page

```
61 SLOKRGIVEOCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                       Insulin (Fragment).
Gerilla gorilla (gorilla).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65; Conservative
                                                                                                                                                                                                                 PRELIMINARY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Insulin (Fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SECUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SECUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67 IVEOR 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 IVEGG 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCB1_faxID-9600;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q8HZB0;
                                                                                                                                                                                                              084281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               088H8Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 5
                                                                                                                                                               RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q8H280
                                                                                                                                                                                    08HZ81
                                    ô
                                                                                 q
                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ĉ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    â
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCOUNT NEW TENT NEW 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 FVNQHLCGSHLVEALYLVCGERGFFYTFRTRREAEDLJVGQVELGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLUVGQVELGGGGPGAGSLQPLALEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                     Tredrea M.M., Buck M.J., Guhaniyoqi J., Squire T.L., Andrews M.T., "kequlation of PDK4 expression in a hibernating mammal.";
Submitted (JUN-2001) to the EMBL/GenBank/DBJJ databases.
-!- SUBCELLUIAR LOCATION: SECRETED (BY SIMILARITY).
-!- SIMILARITY: RELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
EMBL, AY038604; AAR72558.1;
HSSP; P01304: 11MP.
                                                                    Spermophilus tridecemlineatus (Thirteen-lined ground squirrel).
Eukaryota: Metazoa: Chordata: Craniata: Vertebrata: Euteleostomi;
Mammalia: Eutheria: Rodentia: Sciuroqnathi; Sciuridae; Sciurinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Felis sulvestris catus (Cat).
Eukaryofa: Metazoa; Chordata; Cramiata; ertebrata; Eutoleostomi;
Mammalia; Eutheria; Carnivora; Fissipedru; Felidao; Felis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ..
C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     vuery match 89.2%; Score 41%; tH II; Tength: [15] Best Local Similarity 89.5%; Pred: No. 5.8c-41; Matches 72; Conservative 3; Mismatches 4. ****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           83.8%; Score 388; DB 6; Length 110;
83.7%; Pred. No. 3.18*38;
Live 2; Mismatches 12; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P. SOHFELDEAR FOCATION: SECRETED (BY SIMILARITY).
P. SIMILARITY: BELCHGS TO THE INSTITUTION/TOP/HELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Okamoto S., Mo imatsu M.;
"cat ussulth.";
S.bmitted (MAY-2010) to the EMBL/Neusank/20081 databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4541176807 62288055 080565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95FB6E17 (7hECA4 CRC64)
01-0FC-2001 (TrEMBLrel. 19, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAR 2002 (PrEMBLEF), 20, Last sequence update)
01-MAR-2003 (TrEMBLEF), 23, Last adnotati u apdate)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT: 11 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OPWNWE:
01 MAR-2002 (TEBMBLE) 20, Greated)
01-MAR-2002 (FEBMBLE) 20, Last Sent
                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro: IPR004825; Ins/IGF/relax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro: 1PR004825; Ins/IOF/relax
Ptam: PFG0045; Insalin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12004 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PSTUZ62: INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL: ARG4 (18) HAB84110.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS: PRO1277; INSULINE SMART; SMC078; 11GF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rest Local Similarity 83.7
Matches 72: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam: PF0.0049; Insulin:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             110 AAS
                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                       NCBI_TaxID-43179;
                                                                                                                                                                                                                                                   TISSUE-Pancreas;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCB1_Tax1D: 9685;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE-Pancreas;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Preproinsulin.
                                                                                                                                                  Spermophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SECUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OHMNMEO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 1
```

ò 셤 ò g ò

```
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7 CGSHLVEALYLVGGERGFFYTPKTRREAEDLQVGQVELGGGFGAGSLQPLALEGSLQKRG 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HOFFILL | HOFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7 CGSHLVEALYLVCGERGE: YTPKTRREAEDLOVGOVELGGGPGAGSLOPLALEGSLOKRG 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 GSHLVEALYLVGGERGFFYTPYTREAEDLQVGQVELGGGPGAGSLQPLALEGSLQKKG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   othurain C., Tichy H., Klein J.; "Molecular evolution in higher primates; went specific and organism specific characteristics."; Submitted (MAR-2012) to the EMBL/GenBank/EDBJ databases. EMBLs AV092024; AAM76441.1; -...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  O'Buisin C., Troby H., Kiein J.;
"Molecular evolution in higher primates; gene specific and organism
                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota: Metazoa, Chordata, Craniata; Vertebrata, Euteleostomi;
Mammaila: Eutheria, Primates, Catarrhini: Hominidae; Gorilla.
NCBI_TaxID+9593;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pongo pygmaeus (Granquitan).
Eukaryota, Metazoa, Chordata, Craniata: Vertebrata, Bufeleostomi,
Mammolia: Eutheria, Primates, Catarrhini, Hocinidue, Pongo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73.9%; Score 342; DB 6; Length 65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                spec.fic_characteristics.";
Submiffed (MAK 2002) to the EMBL/SenPank/DPRJ databases
EMBL; AY092023; AAM76640.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER 1 : NON_TER 65 65 SEQUENCE 65 AA: 6920 MM; H772017FD4BCABEA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER 65 65
SEQUENCE 65 AA: 6920 MW: H72017EU8BGABEA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-MAR 2003 (TrEMBLIEL, 23, Created)
01-MAR-2003 (TrEMBLIEL, 23, Last sequence update)
01-MAR-2003 (TrEMBLIEL, 23, Last annotation update)
                                                                                                                                                                     01-MAR-2003 (TrEMBLrel, 23, Last sequence update)
01-MAR-2003 (TrEMBLrel, 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73.9%; Score 342; DH 6; I 100.0%; Pred, No. 4.7e-33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 4.7e 33;
65 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.08; Pred. nc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Pred. No. 4.74
tive 0: Mismatches
                                                                                                         01-MAR-2003 (TrEMBLie), 23, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PKT;
```

```
: LY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14;
      Pfam: PF00049; Insulin: 1.
PRINTS: PR00277; ISGUINB.
SMART; SM00038; ILGF; 1.
PROSITE: PS00262: INSULIN; 1.
                                                                                                                                                                                                  Ouery Match
Best Local Similarity 54.1%
Matches 46; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRET IMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 45, Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCB1_Tax1D-8276;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Preproinsulia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C981A8
Q981A8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0902Y1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q902Y1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 090ZY1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DR
DR
DR
SO
                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                            ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOOR BRANK NA COOR SECOND SECO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPL--AL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        33; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
MEDLINE 20162507; P.:DMed-LOBIE274;
ITWIN D.M., Sivarajab P.:
Produsmia, chwas from the Peopard Trots Ring pipeens; excludion of professiving processing."
                                                                                                                                                                                                                                                                                                                                                                           Rana pipiens (Northern leopard froq).
Makaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Ampinbia; Batrachia; Anura; Neobatrachia; Ranoldea; Ranidae; Rana
NGBI_TaxID=8404;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota, Metazoa, Chordata, Craniara, Vertebrata, Euteleostomi, Actinopteryqii, Neopteryqii, Teleostoi, Osteoqlossomorpha, Osteoqlossiformes, Osteoqlossidae, Osteoqlossum, NCBI_TaxiD=109271;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    53.2%; Score 246.5; DB 13; Length 106; 51.5%; Pred. No. 1.7e-21; Live 9; Mismatches 7; Indels 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        106 AA; 12183 MW; 3A870EE, 70217F92 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUN-2001 (IFFMBLrel. 17. Created)
01-JUN-2001 (IFEMBLrel. 17. Last sequence update)
01-MAR 2002 (IFFMBLrel. 20. Last annotation update)
Preproinsulin (Fragment)
Osteoglossum bicirrhosum (silver ajawana).
                                                                                                                                                                                                                                                                                        61 CCT-2000 (TrEMBLrel, 15, Last sequence update)
01-MAR 2003 (TrEMBLrel, 23, Last annotation update)
                                                                                                                                                                                                        ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11: AA.
                                                                                                                                                                                                                                                      01 OCT-2000 (TrEMBLrel, 15, Created)
01 OCT-2000 (TrEMBLrel, 15, Last seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Interproj 19R004825; Ins/IGF/relax
Param PR0049; Insulin; 1.
PRINTS: PR00277; INSULINB.
SMART: SM00078; 11GF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE: PS00262; INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sest Local Similarity 51.5
Matches 52; Conservative
                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
IVEQC 71
                                                 61 IVEQC 65
                                                                                                                                                                                                                                                                                                                                                   Preproinsulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match
                                                                                                                                                                                                  C91807
                                                                                                                                                                                                                                    091807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             098TA7
                                                                                                                                    RESULT 6
091807
AC 09188
AC 09188
AC 09188
BT 01-0x
DT 01-0x
DT 01-0x
DT 01-0x
DE RARA
BR RAY
BR NOBL
RAY
AC 000
RT 0-0x
RT 0-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 7
Q98TA7
õ
                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
```

```
3 NOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLUVGQVFLGGGPGAGSLQPLALEGSL 62
                                                                                                                                                                                                                                  3 NOHLOGSHLVEALVLVC (REFFYTPKTRREAED) (VCOVELGEGPGAGSLOPLAL---- 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---- PLIGFLSPKSAUENE 73
                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13; Indels 25; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pantodon buchhoitzi (Butterflyfish).
Bukaryota: Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi:
Actliopterygii; Neopterygii; Teleostei; Osteoglossomorpha;
Osteoglossiformas: Pantodontidae; Pantodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hiodon alosoides (goldeye).
Eukaryota: Metazoa: Chordata: Craniata; Vertebrata: Euteleostomi:
                                                                                                                                  1;
                                                                 50.9%; Score 235.5; DB 13; Length 111; 54.1%; Pred. No. 3.7e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 49.8%; Score 230.5; DB 13; Length 110; 46.4%; Pred. No. 1.4e-19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-2126357; Pubmed-11306171;
A 1-Mahrouki A.A., Irwin D.M., Graham L.C., Youson J.H.;
F Molecular cioning of preproinsulin cubAs from several
costeoglossomorphs and a cyprinid ":
Mol. Cell. Endocrinol. 174:51-58(2001).
- 'SUBCELLULAR LOCATION: SECRETED (BY SIMILARITY).
- 'SUBCELLULAR LOCATION: SECRETED (BY SIMILARITY).
- 'SIMILARITY: BELONGS TO THE INSULIN/IGF/KELAXIN FAMILY.
- HIST. P01308: 1HIS.
- HIST. P01308: 1HIS.
- HIST. P000049; INSULIN; PRANT: SMOUOTS: IIGF/relax.
                                                                                                                                  26; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE, PS00262; INSULIN: 1.
SEQUENCE 110 AA: 12324 MM: BDECCD659D872E06 CRC64;
SEQUENCE 111 AA; 12491 MW; AC9E1902D4866D20 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-JUN-2031 (TERMELE), 17, Created)
01-JUN-2031 (TERMELE), 17, Last sequence update)
01-MAR-2033 (TERMELE), 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-DEC-2001 (TrEMBLrel, 19 Created)
01-DEC-2001 (TrEMBLrel, 19, Last sequence update)
01-MAR-2003 (TrEMBLrel, 23, Last annotation update)
Preproinsulin (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24 ADEYPYKOGGLKVKRGIVEGCCHHPCNF51GNYAN 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26 SQHECGSHEVDALYMVCGEKGFFYQPKTKRI)VD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59 ...----EGSLQ KRGIVEQCCTSICSLYQLENYON 86
                                                                                                                              12; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             110 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT; 110 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                      : THE FILL THE THILL BY KVKRGIVEN THE
                                                                                                                                                                                                                                                                                                                           63 Q-KRGIVEGCTSICSLYQLENYCN 86
```

```
<u>ښ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                       3 NOHLCGSHLVEALYLVCGERGFFYTPKTRRFAEDLQVCQVELGGCPGAGSLQPLAL..... 58
                                                                                                                                                                                                                                                                                                                                                                                                         26 SQHLCGSHLVDALYMVCGEKGFFYQPKTKRI VD-------P1,LGFI,SPKSAQENE 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 NOHLCGSHLVEALYLVCGERGFFYTPK - TRREAFDLQVGQVELGGCPCAGSLQPLA-LEG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26 NQHLGGSHLVEALYLVCGERGFFYNPKMDKRDAE------PLLGFLSPKSGLEN 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               47.3%; Score 239; CB 13; Length 111;
49.0%; Pred. No. 4.3e-18;
Live 7; Mismatches 17; Indels 26; Gaps
                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Preprofinsulin (Fragment).
Chitaia chitula (clown knitetish).
Eukaryota: Metazota; Choradas: Cramista: Vertebrata; Euteleostomi;
Antinopteryqii; Neopteryqii; Teleostei; steoglossomorpha;
Osteoglossiformes; Notopteridae; Chitalo
                                                                                                                                                                                                                                                                                                                                                               25;
                                                                                                                                                                                                                                                                                                                               48.1%, Shore 23.5, OB 13; Length 110;
45.4%; Pred. No. 1 se-18;
Actinopteryqii; Neopteryqii; Teleostei; Osteoglossomorpha;
Osteoglossiformes; Hiodontidae; Hiodon.
                                                                      Ai-Mahrouki A.A., irwin D.M., Graham L.C., Youson J.H., "Molecular cloning of preprotusulin clarks from several ostsoquepsements and a cyprinid."

Moi. Gell. Endocrinol. 174:51-58 (201).

-: SURCELLULAR LOCATION: SECRETED (RY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                              15; Indels
                                                                                                                                                                                                                                                                                                   RDE10137018F028016 / OR0641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  111 AA: 12483 MW; 247CA4431376329F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-JUN-2001 (TrEMBLrel, 17, Created)
01-JUN-2001 (TrEMBLrel, 17, Last Sequence update)
01-MAN-2003 (TrEMBLrel, 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                34 ADEYPYKOJGDLKVKRGIVEQCCHRPCNIFDLNQYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                               59 ......EGSLQ-KRGIVEOFCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                              13; Mismatches
                                                                                                                                                                                                        Interpro: IPR004825; Ins/IGF/relax. Pfam: PP00049; Insulin: 1. SHINTS; PR00277; INSULINB. SMARY: SMO078; IIGF: 1. PR0SITE; PSG0262; INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro: IPR004825: Ins/EF/relax.
Pram: PF00049: Insulin: 1.
PAMAT: SMC0708: Infe: 1.
Now_FER 111 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDILINE-21203577; PubMed-11306171;
                                                                                                                                                                                                                                                                                    110 110
310 AA: 12343 PW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMRE: AF199586; AAK28710.1;
HSSP; P01308; 1LPH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Hest Local Similarity 49.00
Matches 48, Conservative
                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 45.4 Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCB1_Tax1D=112163;
                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                              NCB1_TaxID-54904;
                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SECUENCE
                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
                                                                                                                                                                                                                                                                                    NON TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        098180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 10
Q98TB0
õ
```

```
4 OHLOGSHLVEALYLVCGERGFFYTPKTRRFAEDLOVGUVELGGGPGAGSLQPLALEGS++ 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27 OHLCGSHLVDALYLVCGPTGFFYNPK--ROVE - ------PLLGFLPPKSAQFTEV 72
                                                                                                                                                                                                                                                                                                                                                                                                                         Brachydanio rerio (Zebrafish) (Danio rerio).
Eukaryota: Metazoa: Chordata: Craniata: Vertebrata: Euteleostomi:
Actinopterygii: Neopterygii: Teleostel: Ostariophysi: Cypriniformes:
Cyprinidae: Danio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Catla catla (catla).
Eukaryota: Metazoa: Chordata; Craniata: Vertebrata; Euteleostomi;
Actinopteryaii; Neopteryaii; Teleostei: Ostariophysi; Cypriniformes:
Cyprinidae: Catla.
NCBI_TaxID=72446:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bhattacharya S., Roy S.S., Dasgupta S., Ravikumar L., Mukherjee M.,
Bandyopadhyaya I., Wakabayasi K.;
"A new cell secreting insulin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 13; Length 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Argenton F., Zecchin E., Bortoinssi M.:
"Early appearance of pancreatic hormone expressing cells in zebrafish embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mech. Dev. 87:217-22:(1999).
-!- SURCELLULAR LOCYTION: SECRETED (BY SIMILARITY).
-!- SINTLARITY: BEEL NGS TO THE INSULIN/IGF/RELAXIN FAMILY.
EMBL: AAJ23756; CAC.0169.1; -- HSSP: P01368; 1LPH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL,
INSULIN B CHAIN,
INSULIN A CHAIN,
3195289272AD6D25 CRC64;
                                    34 EVDEYPEKDOGDVKMKRGIVEOCCHRPCNIFDONOYCN 111
                                                                                                                                                                                                                                                                       01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-0FC-2001 (TrEMBLIE), 19, Created)
01-DEC-2001 (TrEMBLIE), 19, Last sequence update)
01-MAR-2003 (TrEMBLIE), 23, Las' annotation update)
   -- OKRGIVEOCCISICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       73 ADFAFKDHAELIPREGIVEOCCHKPCSIFELGNYCN 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         --- LUKRGIVEQCCTSICSLYCLENYON 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  46.3%; Score 214.5; DB 1
45.8%; Pred. No. 1.1e-17;
tive ll; Mismatches 14
                                                                                                                                                                                                                   108 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TUB AA
                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ZDB-GENE-980526-110; fns.
Pro; IPR004825; Ins/IGE/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLENE-99425190: PubMed-10495291;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          168 AA; 11904 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE; PSU0262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam: PF00049; Insulin; 1.
PRINTS; PR00277; INSULINB.
SMART: SM00078; ILGF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity 45.8%
Res 44; Conservative
                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELLIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         108
61 SL---
                                                                                                                                                                                                                                                                                                                                                                       Insulia precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Preproinsulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0902N4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0902N4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 12
0902N4
                                                                                                                                                 RESULT 11
                                                                                                                                                                                  09DDE5
                                                        g
                                                                                                                                                                                                                                                                              SETTEMENT OF STREET OF STR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>a</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

```
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                    0.8
                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                             098TB2
       g
                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                     ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                             7
                                                                                                                                                         4 QHLCGSHLVEALYLVCGERGFFYTPKTRRFAEDLQVGQVELGGGPGAGSLQPLALEGS-- 61
                                                                                                                                                                              *** ** SPLPPKSAGFTEV 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4 QHIGGSHLVEALYLVGGERGFFYTPKTRREAEDLOVGQVELGGGP--GAGSLOPLALEGS 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4 UHLCGSHLVEALFLVCGERGFFFNPDTKRDVUSL-LGFLSPKSGPENEADEYRYKEQAEV 62
                                                                                                                                        27; Gaps
                                                                                                                                                                                                                                                                                                                         Gnathonemus petersii.
Eukaryota: Metazoa: Chordata: Graniata: Vertebrata: Euteleostomi:
Actinopterygii: Neopteryaii: Telecstei: Osteoglossomorpha:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ۳
:
                                                                                                                   45.9%; Score 212.5; DB 13; Length 108; 44.8%; Pred. No. 1.9e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             45.5%; Score 216.5; UB 13; Length 87; 50.6%; Pred. No. 2.6e.17; ctive 11; Mismatches 28; Indels 3
                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.

1. SUMILARILY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.

1. SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.

EMBL: AF373021: AAK51558-1;

InterPro: IPR004855; Ins./IGF/relax.

Pran: PP004045; Insulin: 1.

PRINTS: PR00277: INSULINB.

SWART: SM00708: ILGF: 1.

PROSITE: PS00262: INSULIN: 1.

SROGEN: INSULIN: 1.

SEQUENCE: 108 AA: 11881 MM; D713026F22EF5D59 CRC64;
                                                                                                                                        14; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PS CRC64;
                                                                                                                                                                                                                                                                                  01-JUN-2001 (TFEMBLED), 17, Created)
01-JUN-2001 (TFEMBLED), 17, Last sequence apdate)
01-MAR-2003 (TFEMBLED), 23, Last annotation update)
                                                                                                                                                                                                           2 - APPAR KOBARVIRKBOT VEDOTINE TO THE TARGET APPAR TO STATE ONYON THE
                                                                                                                                                                     22 GRIGGSHLVDALYLVCOFTGEFYNPR ROVDPLM - - -
                                                                                                                                                                                                 TOKA TIVED HITSTIPS YOURNIN BE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108 AA.
                                                                                                                                       12; Mismatches
                                                                                                                                                                                                                                                                                                                                                         Osteoglossitormes: Mormyridae, Gnathonemus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87 AA; 9874 MW; FF448ED35D2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62 LOKRGIVEOCCTSICSLYQLENYCN 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63 KVKRGIVEQCCHHPCN1FDLNQYCN 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDLINE-21203577; Pubmed-11306171;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
Best Local Similarity 50.6%
Matches 43; Conservative
                                                                                                                           Best Local Similarity 44.88 Matches 43; Conservative
                                                                                                                                                                                                                                                                                                                Preproinsulin (Fragment).
                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  87
                                                                                                                                                                                                                                                                                                                                                                 NCHI_TaxID-42645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON
                                                                                                                                                                                                                                                                O98TA9
                                                                                                                                                                                                                                                                            C4BTA9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             098TB1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   098TB1
                                                                                                                                                                            a
    ò
```

```
4 CHLCGSHLVEALYLVCGERGFFYTPKTFFFAEDLJOVGOVELGGGPGAGSLOPLALEGS++ 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Preproinsulin (Fragment).
Catostomus commersoni (White Sucker).
Catostomus commersoni (White Sucker).
Eukaryota: Metazoa: Chordata: Graniata; Vertebrata: Euteleostomi:
Actinopterygii: Neopterygii: Teleostei: Ostariophysi: Cyprinilormes;
Catostomidae: Catostomus.
NCBI_TaxID=7971:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Acanthomorpha; Acanthopteryqii; Percemorpha; Perciformes; Percoidei;
Centrarchidae; Ambloplites.
NCBI_TaxID=109273;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota: Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi;
Actinopterygii, Neopterygii; Teleostei, Euteleostei, Neoteleostei,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Al-Mahrouki A.A., Irwin D.M., Youson J.H.;
"Molecular closing of preprolisalin closh from the rock bass.";
"Submitted (OCT-1999) to the EMBL/GenRank/Dibsy databases.
!- SUBCELLULAR LOCATION: SECRETED (BY SIMILARITY).
!- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
ESEMBL: AF199584: AAK28708.1;
HSSP; P01308; ILPH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44.4%: Score 205.5; DH 13; Length 108; 50.0%; Fred. No. 1.3e 16; (ive 12; Mismatches 24; Indels 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDINE-21203577; PubMed-11306171;
MADINE-21203577; PubMed-11306171;
MAI-MAhrouki A.A., Irwin D.M., Graham D.C., Youson J.H.;
A.Hahrouki A.A., Irwin D.M., Graham D.C., Youson J.H.;
A.Hahrouki A.A., Irwin D.M., Graham D.C., Youson J.H.;
I. Mol. Gell. Endocrinol. 174:51-58(200);
C.-: SubGell. Endocrinol. 174:51-58(200);
C.-: SUBCELLUIAN COATION: SECRETED (BY SIMILARITY).
C.-: SUBCELLUIAN COATION: SUBCELLUIAN.
C.-: SUBCELLUIAN COATION: SUBCELLUIAN CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 203.5; DB 13; Length 91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                108 AA: 11873 MW; E426310696FBAFC8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91 AA; 10100 MW; E86C8B256DC69D39 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              098TB2;
01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
61-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9: AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 LOKRGIVEOCCTSICSLYOLENYCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro: IPR004825; Ins/IGF/relax.
Pfam; PF00049; Insulin; 1.
SMART; SM00078; IlGE; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Preproinsulin (Fragment).
Ambloplites rupestris (Rock bass).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     50.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 50.0%
Matches 43; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
```

Search completed: September 15, 2003, 12:03:29 Job time: 35.5986 secs

	Ltd.
5.1.6	Compugen
vers 10n	- 2003
Core	c) 1993
Se	(c)
	Copyright

3	
0	mode1
2	Š
ì	ng
	us i
36	search,
	OM protein . protein search, using sw model
	protein
	∑

September 15, 2003, 11:44:15; Search time 36.5305 Seconds Run on:

(without alignments) 225.942 Million cell updates/sec

US-09-423-100-5 294 Title: Perfect score: Sequence:

1 FVNQHLCGSHLVEALYLVCG.....IVEQCCTSICSLYQLENYCN 52 BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

Total number of bits satisfying chosen parameters: 1107864 seqs, 158726573 residies Searched:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 08 Maximum Match 100%

Listing first 45 summaries

A_Geneseq_19Jun03:* Database :

2. (SIDSI) graduata/genescqp-embl/AA1980.DAT:
2. (SIDSI) graduata/genescqp-embl/AA1980.DAT:
3. (SIDSI) graduata/genescqp-embl/AA1981.DAT:
3. (SIDSI) graduata/genescqp-embl/AA1981.DAT:
4. (SIDSI) graduata/genescqp-embl/AA1981.DAT:
5. (SIDSI) graduata/genescqp-embl/AA1981.DAT:
6. (SIDSI) graduata/genescqp-embl/AA1981.DAT:
7. (SIDSI) graduata/genescqp-embl/AA1981.DAT:
8. (SIDSI) graduata/genescqp-embl/AA1981.DAT:
9. (SIDSI) graduata/genescqp-embl/AA1981.DAT:
9. (SIDSI) graduata/genescqp-embl/AA1989.DAT:
9. (SIDSI) graduata/genescqp-embl/AA1989.DAT:
9. (SIDSI) graduata/genescqp-embl/AA1991.DAT:
9. (SIDSI) graduata/genescqp-embl/AA1992.DAT:
9. (SIDSI) graduata/genescqp-embl/AA1992.DAT:
9. (SIDSI) graduata/genescqp-embl/AA1992.DAT:
9. (SIDSI) graduata/genescqp-embl/AA1995.DAT:
9. (SIDSI) graduata/genescqp-embl/AA1999.DAT:
9. (SIDSI) graduata/genescqp-embl/AE1995.DAT:
9. (SIDSI) graduata/genescqp-embl/AE1995.DAT:
9. (SIDSI) graduata/ge Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

/SIDS1/goddata/geneseq/qeneseqp.embl/AA2001,DAT;*/SIDS1/goddata/geneseq/qeneseqp.embl/AA2002.DAT;*/SIDS1/qcqdata/qeneseqp.embl/AA2003.DAT;*

					SCHWARIES	
		æ				
Result		CHERY				
NO.	Score	Match	e Match Length DB I	CB	JI	Description
-	757	100.0		20		Human insulin prec
7	787	100.0	26	15	AAR68901	Human pro-insulin
~	294	100.0		16	AAR78665	Projusulin seguenc
4	294	100.0	63	15	AAR68900	Human pro-insulin
v.	294	100.0	96	15	AAR68899	Human pro-insulin
ę	294	100.0	96	16	AAR78662	Fusion protein con
7	294	100.0	107	20	AAY42860	hGH-mini-proinsuli
6 0	294	100.0		17	AAR98897	SOD-proinsulin hyb
σ	294	100.0	_	16		Mating factor alph

Mating factor alph Mating factor alph	Chimeric protein,	Proinsulin analogu	Example of human i	Di-Arg-(B31-32)-Hu	Insl double-chain	Glycosylphosphatid	SOD-proinsulin hyb	Human proinsulin a	Human mature insul	Human mature insul	Human insulin. Ho	Modified pJB59 mod	Modified pJB59 mod	Single chain insul	Met-Arg-Met-single	Single chain insul	pKV142 modified in	Sequence of novel	G1y-A21-di-Arg-(B3	Preproinsulin 1.	lns3 double-chain	Ins2 double-chain	Example of human i	pAK679 modified in	Modified Human ins	Amino acid sequenc	Sequence encoded b	Modified pJB59 mod	Modified pJB59 mod	Modified pJB59 mod	N-terminally exten	Signal peptide/lea	Insulin precursor	YAP3 signal peptid
6 AAR71694 6 AAR71695	0 AAY42861	1 AARU4582	2 AAR11899	Z.	80	9	7	AAP20002			3 AAM48219	17 AAK96046				17 AAW06810		AAP60132			18 AAK17999				0 AAY28341		AAP71019				7 AAR88188	7 AAR88179	13 AAR25584	7 AAR88181
145 1	150 2	57 1	52 1			160 1																											91	
100.0	100.0	0.96	97.6	4.96	96.4	4.96	96.1	95.7	94.7	64.7	94.7	94.7	94.7	94.7	94.7	94.7	94.7	94.4	7.75	2 46	0.44	0.46	93.7	93.7	93.7	63.7				93.7				93.7
294 294	294	291	287	283.5	283.5	283.5	282.5	281.5	278.5	278.5	278.5	278.5	278.5	278.5			278.5			r													275.5	
10	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	78	62	0,	7	3.2	33	34	35	36	37	38	36	40	41	42	4 3	44	4.5

ALIGNMENTS

```
Insulin; precursor, growth hormone, chaperone, intramolecular, folding, conformation, chimeric protein; cleavable, recombinant, production, yield.
                                                              Human insulin precursor, SEQ ID 5.
              AAY42859 standard; protein; 52 AA
                                                                                                                                                            98WO-CN00052.
                                                                                                                                                                            98WO-CN00052
                                              19-JAN 2000 (Lirst entry)
                                                                                                                             W09950302-A1.
                                                                                                                                                           31-MAR-1998;
                                                                                                             Homo sapiens
                                                                                                                                                                            31-MAK-1998;
                                                                                                                                            07-0CT-1999.
                              AAY42859;
RESULT 1
AAY42859
```

(TONG:) TONGHUA GANTECH BIOTECHNOLOGY LTD. WPI: 1999-610839/52 Gan 2;

New chimeric proteins containing human growth hormone fragment, used particularly for the production of human insulin

0

Gaps

.. 0

Length 56; Indels

100.0%; Score 294; DB 15; 100.0%; Pred. No. 1.7e-26;

Mismatches

..

Guery Match
Best Local Similarity 100.00

ô <u>:</u>

56 AA;

Sequence

1 FVNQBL/1SHLVBALYLV/GERGFFYTPKTFR/TVHG/~1STCSL/YQLENYON 52 THE CHIEF THE CH

Pro-insulin is produced by treating recombinant precursor protein with a mercaptan to provide 2-10 SH residues per Cys residue, in presence of a chostropic agent and in aq. medium of pH 10-11. Lieuting the productopic agent and in aq. medium of pH 10-11. Insolating the produces of a discorbed resin per 1 aq. medium of pH 4-7, isolating the adsorbed resin and pro-insulin and desorbing the pro-insulin. This method produces pro-insulin and correctly bonded Cys bridges. Compared with known methods it involves fewer stages (esp. no sulphibliopsis or cyanogen bromide cleavage) and overail losses during purification are reduced, i.e. the process is quirker and gives better yields. Sequences of issulin chain A, B and C are given in AAK68895-97. Sequences of pro-insulin 1-4 are given in: AAK68896-901.

```
This sequence represents a human insulin precursor comprising insuling A and B chains. This insulin precursor is a component of the chimeric protein component of the chimeric protein advances high-mini-profusulin (AAY4286) and the chimeric protein advanced given in AAY42861. These chimeric proteins additionally contain an component of human growth hormone (hdH) and a cleavable of view in AAY42861. The hdH portion of the chimeric protein acts of computer (AAY42857). The hdH portion of the chimeric protein acts as an intramolecular chaperone (IMC) for the insulin precursor, containing it to fold correctly. The chimeric protein of the chimeric protein to be removed after folding has taken place, eroduction of recombinant human insulin via an hdH-poinsulin chimeric protein conformation insulin via an hdH-poinsulin chimeric protein conformation insulin with correctly linked cysteine bridges with concentral protein and decrease not only protect insulin sequences from intracellular degradation by a microorganism host, but also produced the fusion proteins, thus allowing roiding of the fusion shorts are allowed a protein also protein and decrease the intermolecular interactions among the fusion proteins, thus allowing roiding of the fusion proteins are deviced along a protein and company and a protein along a communication steps can this a result of publication steps can this a result of publication and metroagelum of the fusion protein and the commentation along a beginning a percursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 FYNQHEGGSHLVEALYLVGGERGFFYTPKTRGIVEGCTSICSLYGLENYCK 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pro insulin: A-chain: B-chain: C-chain, disulphide:
mercaptan: chaotropic agent.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; Score 294; DB 26; 100.0%; Pred. No. 1.6e-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
             Claim 12; Page 29-30; 46pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR68901 standard: peptide: 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 100.
Matches 52, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (updated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human pre-insulin 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.2 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MAR 2003
MAR 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EP600372-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08 JUN 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AARGESS1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Seq. conne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25 · i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR6890
ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QI
```

::

```
Isolation of insulin that is correctly post-translationally processed - by reacting pro:insulin with a mercaptan in the presence of a chaotropic agent and purificm, after absorption to hydrophobic
                                                                                            Proinsulin; post translational modification; recombinant production;
                                                                                                                                                                     "a peptide of 4 amino acids"
                                                                                                                                                                                                                                  30.55
/label* Gly-(A2-A20)-R3
/note= "human insulin A:chain"
                                                                                                                                                                                                                                                                                                                                                                3
                                                                                                                                                                                                                                                                                                                                                                Sabel
                                                                                                                                                                                       /label - Rl - (B2-B29) - Y
/noter "buman insulin
                                                                                                                                             Location/Qualitiers
                    Ą
                                                                                                                                                                                                                                                                                                                                                                obermeier R,
                                                                                                      protein folding: conformation.
                  AAR78665 standard: profein;
                                                                                                                                                                                                                                                                                                        95EP-0101748
                                                                                                                                                                                                                                                                                                                          94DE 4405179
                                                                                                                                                              /label: k2
                                                        (first entry)
                                                                                                                                                                                                                     /label- x
                                                                          Proinsuite sequence 3.
                                                                                                                                                                                                                                                                                                                                                                Ludwig J.
                                                                                                                                                                                                                                                                                                                                                                                   WPI: 1995-284754/38
                                                                                                                                                                                                                                                                                                                                             (FARH ) HOECHST AG.
                                                                                                                                                                                                                                                                                                       09-FER-1995;
                                                                                                                                                                                                                                                                                                                          18-FEB 1994;
                                                       03-APR-1996
                                                                                                                                                                                                                                                                 EP668292 A2
                                                                                                                                                                                                                                                                                     23-AUG 1995
                                                                                                                         Synthetic.
                                     AAR 781.65;
                                                                                                                                                                                Pept ide
                                                                                                                                                                                                                             Pept ide
                                                                                                                                                                                                                                                                                                                                                                Geri M.
                                                                                                                                                                                                            Region
                                                                                                                                                     Region
                                                                                                                                                                                                                                                                                                                                                                                                                                   resin
RESULT 5
       AAK78665
                                                                                                                                             Key
```

treating recombinant precursor protein with mercaptan in alkali and in presence of chaotropic agent, then isolation on hydrophobic resin

Disclosure: Page 12; 15pp; German

Produced for dissuling with correct dissurphide bridges - by

Sabel 1:

Obermeier R,

MP1: 1994-177718/22 Gerl M. Ludwig J. (FARH) HOETHST AG

93EP-0118993 92DE-4240420

02 - DEC - 1992; 25 NOV-1993;

; ;

Caps

;

Indels

Length 63;

```
Involves fewer stages (esp. no sulphitolysis or cyanogen bromide cleavage) and overall losses during purification are reduced, i.e. the process is quicker and gives better yields. Sequences of insulin chain A, B and C are given in AAR68895-97. Sequences of pro-insulin 1-4 are given in AAR68898-901. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           with a mercaptan to produced by treating recombinant precursor protein with a mercaptan to provide 2-10 SH residues per Cys residue, in presence of a chactropic agent and in aq. medium of pH 10-11, reating the produced with 3-50 g hydrophobic adsorber resin per I aq. medium of pH 4-7, isolating the adsorbed resin and pro-insulin and desorbing the pro-insulin. This method produces pro-insulin with correctly bonded Cys bridges. Compared with known methods it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          involves fewer stages (esp. no sulphitolysis or cyanogen bromide cleavage) and overali losses during purification are reduced, i.e. the process is quicker and gives better yields.
                                                                                                                                                                                                                                                                                                                                       1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEOCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                    FUNDALICESHI,VEALYLVCGERGFFYTPKTRGIVEGCCTSICSLYQLENYCN 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     treating recombinant precursor protein with mercaptan in aikali and in presence of chaotropic agent, then isolation on hydrophobic resin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequences of insulin chain A, B and C are given in AAR68895-97.
Sequences of pro-insulin 1-4 are given in AAR6898-901.
(Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Prodm. of pro-insulin with correct dissulphide bridges :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pro-insulio, A-chain, B-chain, C chain, disulphide, mercaptan, chaotropic agent.
                                                                                                                                                                                                                                    Score 294; DB 15;
Pred. No. 1.9e 26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 294; DB 15;
Pred, No. 2.9e-26;
                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sabei W;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure: Page 11: 15pp: German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AARESSY9 Standard; peptide; 96 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Obermeier R,
                                                                                                                                                                                                                                      Ouery Match
Best Local Similarity 100.0%;
Matches 52; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93EP 0118993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (updaled)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1994-177718/22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human pro-insulin .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ger! M, Ludwig J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (FARH ) HOECHST AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                       63 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02-DEC-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EP600372-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-JUN-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AARE HRYY:
                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAK58899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ó
                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ..
:
                                         The present sequence is an example of a proinsulin molecule corresp. In the present sequence is an example of a proinsulin molecule corresp. In the degeneral formula R2-R1-(B2-B29-Y-X-Gly-R2-R20)-R3 (II) In formula (II), x = Lys, Arg or a peptide of 2-35 amino acids contq.
Lys or Arg at the N- and C-termini; Y = a natural amino acids
Contq. Arg or Lys at the N and C-termini; R3 = a natural amino acids
Contq. Arg or Lys at the N and C-termini; R3 = a natural amino acids
Contq. Arg or Lys at the N and C-termini; R3 = a natural amino acids
Contq. Arg or Lys at the N and C-termini; R3 = a natural amino
Contq. Arg or Lys at the N and C-termini; R3 = a natural amino
Contq. Arg or Lys at the N and C-termini; R3 = a natural amino
Contq. Arg or Lys at the N and C-termini; R3 = a natural amino
Contq. Arg or Lys at the N and C-termini; R3 = a natural amino
Contq. Arg or Lys at the N and C-termini of Proinsulin. The reaction
C recommend and results in proinsulin with correctly linked cystine
C bridges. Reaction with trypsin and opt. carboxypeptidase B yields
C correctly folded insulin. The insulin is isolated by absortion on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SORT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             presence of a chaotropic agent and in aq. medium of pH 10-11, treating the prod. with 3-50 g hydrophobic adsorber resin per 1 ag medium of pH 4-7, isolating the adsorbed resin and pro-insulin and desorbing the pro-insulin. This method produces pro-insulin with correctly bonded Cys bridges. Compared with known methods it.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Profinsulin is produced by treating recombinant precursor protein with a mercaptan to provide 2-10 SH residues per Cys residue, in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 FVNQHLCGSHLVEALYLVGGERGFFYTPKTRGIVEGCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FVNOHLGGSHLVEALYLVGGERGFFYTPKTF-31VEQCGTSTCSLYQLENYCN 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         treating recombinant precursor protein with mercaptan in alkall
and in presence of chaotropic agent, then isolation on
hydrophobic resin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       160 0%; Severa and, exists lemmath for 1000,000; inted, No. 1, No. 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Produ. of prolinsulin with correct dissulphide bridges - by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              indets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pro-insulin: A-chain; B-chain; C-chain; disulphide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Co. M. Smart Photo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sabel W:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure, Page 11-12, 15pp, German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR68900 standard; peptide: 63 AA
Example 2; Page 13; 16pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sudwig J, Obermeler R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mercaption; chaotropic agent.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93EP-0118993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            92DE-4240420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      52: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human pro-insulin 4.
                                                                                                                                                                                                                                                                                                                                                                                                      a hydrophobic resin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WP1: 1994-177718/22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (FARH ) HOECHST AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        56 AA;
```

25 MAR-2003 02 MAR-1995

AAR68900;

RESULT 4

Sequence

Query Marct.

Matches

ò

25-NOV-1993;

02 DEC-1992;

Ger: M.

Home sapiens

EP600372-AL 36 - JUN - 1994 Length 96;

96 AA;

Sequence

S

```
0
                                                                                                                                                                                                                                                                                                                                                                                                                            Isolation of insulin that is correctly post-translationally processed - by reacting profinsulin with a mercaptan in the presence of a chaotropic agent and purificn, after absorption to hydrophobic
  Gaps
                                                                                                                                              Proinsulin: post-translational modification; recombinant production; protein folding; contormation.
               1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                         .;
indels
                                                                                                                                                                                                                   /note= "a peptide of 4 amino acids"
.:
                                                                                                                                                                                                                                                                            /label- Gly (A2-A20)-R3
/note- "human insulin A-chain"
                                                                                                                                                                                                                                           /note~ *human insulin B chain"
                                                                                                                              Fusion protein contg. proinsulin sequence 3.
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                             Sabel W;
                                                                                                                                                                                                                              45.../4
/label= Rl-(B2-B29)-Y
                                                                                                                                                                                          ucation/gralifiers
                                                                           AAR78662 standard; protein; 96 AA
                                                                                                                                                                                                                                                                                                                                                                                            Ludwig J, Obermeier R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example 2: Page 8: 16pp: German.
;;
                                                                                                                                                                                                                                                                                                                                          95EP-0101748
                                                                                                                                                                                                                                                                                                                                                          94DE-4405179
                                                                                                                                                                                                         /labei~ R2
                                                                                                             03-APR-1996 (first entry)
                                                                                                                                                                                                                                                              /label - X
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                             WP1: 1995-284754/38.
                                                                                                                                                                                                                                                                                                                                                                          (FARH ) HOECHST AG
                                                                                                                                                                                                                                                                                                                                         09 · FEB · 1995;
                                                                                                                                                                                                                                                                                                                                                         18 FEB-1994;
52;
                                                                                                                                                                                                                                                                                                       EP668292-A2
                                                                                                                                                                                                                                                                                                                        23 AUG-1995
                                                                                                                                                                       Synthetic.
                                                                                           AAR78662;
                                                                                                                                                                                                                                                                                                                                                                                            Gerl M,
                                                                                                                                                                                                                                                                     Pept idea
                                                                                                                                                                                                                            Pept ide
                                                                                                                                                                                                  Region
                                                                                                                                                                                                                                                     Region
Matches
                                                          RESULT 6
                                                                   AAR78662
                 ó
```

The present sequence is that of a fusion protein, produced in Electivative tendans an example of a proinself molecule corresp.

Formula (11), X = Lys. Arg or a peptide of 2.35 amino acids (11), X = Lys. Arg or a peptide of 2.35 amino acids contq.

Lys or Arg at the N- and C-termini: Y = a natural amino acids

Phe or a bond; R2 = H, Arg. Lys, a peptide of 2-45 amino acids

contq. Arg or Lys at the N- and C-termini: N = a natural amino acids

acid: (A2-A20) and (B2-B29) are the insulin A- and B-chain sequences from human or other insulin. The proinsulin molecules released by residues of mercaptan per Cys residue of proinsulin. The reaction

takes place in the presence of a chaotropic auxiliary agent at the 10-11 and results in proinsulin with correctly linked eystine bridges. Reaction with trypsin and opt. carboxypeptidase B yields correctly folded insulin. The insulin is isolated by absortion on

hydrophobic resin.

```
Continents proceed to the sequence given in A442855, a cleavable peptide linker (AA42857), and a human insulin presursor comprising insulin and a human insulin presursor comprising insulin and a human insulin presursor comprising insulin and a nintramolecular chaperone (MC) for the insulin precursor.

Conteminal Asy residue which enables the holl portion of the chimeric protein to be removed after folding has taken place. Production of recombinant human insulin via an holl proinsulin chimeric protein can provide human insulin with correctly linked cysteine bridges with provide human insulin with correctly linked cysteine bridges with of human insulin with correctly linked cysteine bridges with the man insulin. The IMC sequences not only protect insulin sequences from intracellular degradation by a microorganism host, but also promote the folding of the fusion protein and decrease the intermolecular interactions among the fusion proteins, thus allowing folding of the fusion proteins, thus allowing folding of the fusion proteins.
                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       eyanogen bromide elerwage, oxidative sulphitolysis and related purification steps on thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic absorbent resins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This sequence represents a chimeric protein, half-mini-proinsulin.
This chimeric protein contains an N-terminal fragment of human growth
                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New chimeric proteins containing human growth hormone fragment, used particularly for the production of human insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         commercially useful high concentrations. The procedural steps of
                                                                                     1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                         Insulia, precursor, growth Rasmone, chaperone, intramolecular, folding, conformation, chimeric protein, cleaved or recombinant,
                                                    .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 107;
               Length 96;
                                                    indels
               Score 294; DB 16;
Pred. No. 2.9e·26;
                                                    .
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 294; DB 20;
Pred. No. 3.2e-26;
                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (TONG-) TONGHUA SANTECH BIOTECHNOLOGY LIB.
                                                                                                                                                                                                                                                                                                                              hGH mini-proinsultm chammeric protein
                                                                                                                                                                                                                  AAY42860 standard; profein: 107 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 13; Page 30; 45pp; English.
               100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2300 CNG0052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO CN00052
                                                                                                                                                                                                                                                                                            (first entry)
Ouery Match
Best Local Similarity 100.0
These 52, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1999-610839/52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                      production; yield.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                W09950302-A1
                                                                                                                                                                                                                                                                                          19 JAN 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31-MAR : 1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31-MAR 1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   07-00:11999
                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                       AAY42860;
                                                                                                                                                                                                 AAY42860
                                                                                                                                                                                 RESULT
                                                                                       ò
                                                                                                                          £
```

Matches

RESULT 8

```
AAQ86425 encodes AAR71692 mating factor alpha I-Insulin precursor ArgB31. ArgB31 comprises the B and A chains of a claimed human insulin derivative. In the final claimed composit, they are covalently connected via disulphide bonds between Cys residues A7/B7 and A20/R19. The derivative, which may be present as a zinc ion complex, can be used as a fast action treatment for disbetes. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96 FVNQBEGGSHUVEALYLYCGERGEFYTPKTRGTVEGGGTSIGSLYGGENYCN 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 EVNOHLOSSHLVEALYLVGGERGFFYTPKTRGIVEDGOTSICSLYQLENYCN 52
                                                                                                                                                               Human insulin precursor ArqB31; diabetes; Zinc ion complex;
mating factor alpha 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Acylated insulin deriv, which may be present as a Zinc ion complex - is used to treat diabetes and is rapid acting.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Jonassen 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match 100.0%; Score 254; DB 16;
Best Local Similarity 100.0%; Pred. No. 4.1e 26;
Matches 52; Conservative 0; Mismatches 0;
                                                                                                                             Mating factor alpha 1-Insulin precursor ArgB31.
                                                                                                                                                                                                                                                                                     /label- mating factor aigha 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Havelund S,
                                                                                                                                                                                                                                                   Location/Qualitiers
1..85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Example 5; Page 78; 100pp; English.
     AAR71692 standard: Protein; 137 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR71694 standard; Protein; 145 AA
                                                                                                                                                                                                                                                                                           36...16
Zabel- B chain
117...137
                                                                                                                                                                                                                                                                                                                                                          /:ahel A ehain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   94WG-DKG0347.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     93DK-0001044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        940S:0190829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-MAR-2003 (updated)
20-NOV-1995 (first entry)
                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Halstrom JB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (NOVO ) NOVO-NORDISK AS
                                                                            (chdated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1995-131314/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 137 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; AA086425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-SEP-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      02 FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Andersen AS,
                                                                          25-MAR:2003
20-NOV-1995
                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                            W09509531 A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17-SEP-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Markussen J;
                                                                                                                                                                                                                                                                                                                                                                                                                                23 MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR71694;
                                       AAR71692;
                                                                                                                                                                                                                                                                      Protein
                                                                                                                                                                                                                                                                                                      Pept 1de
                                                                                                                                                                                                                                                                                                                                         Pepi ...Je
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 10
AAR71694
       ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ::
ت
   ö
   Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sabs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A new method for the production of recombinant human insalin comprises folding a hybrid polypeptide comprising profusulin under conditions that permit correct disulphide bond formation and subjecting that folded protein to enzymanic cleavage. The insulin produced can then be purified. This sequence is a SOB-insulin briain Arabin hybrid polypeptide and is encoded by the plasmid construct pBBAST-LAT results in the efficient cypression of the profusion of the production the production hybrid polypeptide, useful for human insulin production. The method produces recombinant human insulin dentical to the natural hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Recombinant insulin prodn. by correctly toiding pro-insulin hybiid polypeptide - then enzymatic cleavage of folded product, does not require sulphite protection of SH nor use of cyanogen bromide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        identical to the natural hormone. Hazardous and commersione procedures involving cyanosen bromide and sulphitolysis to protect SH groups are avoided since the entire hybrid polypeptide folds efficiently to the native structure even with the leader attached
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEOCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 17: Length 116:
                                                                                                                                                                                                                                                                                                  Insulin; proinsulin; hybrid polypepride; protein folding;
enzymatic cleaving: cyanogen bromide, soliticolysis,
   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 29: DB 17:
Harity 100.0%; Pred. No. 5.5e-26:
Conservative 0: Mismarches 0:
 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mendelovitz S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (BIOT:) BIO-TECHNOLOGY GENERAL CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example 18; Figure 7; 69pp; English
                                                                                                                                                         AAR98897 standard: Protein; 116 AA
                                                                                                                                                                                                                                                              Soft proinsulin hybrid polypeptide
.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94WO-US13268.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            94WO-US13268
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hartman JR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI: 1996-333766/33.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and Cys upprotected.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
les 52: Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   116 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N PSDB: AAT34670
                                                                                                                                                                                                                                                                                                                                                       Home sapiens
                                                                                                                                                                                                                                                                                                                                                                                      WJ9620724-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                              29 - DEC - 1994 :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10-JAN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-DEC-1994;
                                                                                                                                                                                                                               04 FEB-1997
                                                                                                                                                                                                                                                                                                                                                                                                                          11 JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gorecki M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Soduence
                                                                                                                                                                                             AAR98897;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
```

0

Gaps

0

Indels

Length 137;

Mating factor alpha 1-Insulin precursor ArqB1, ArgB31 N-terminal.

Matches

RESULT 9 AAR71692

```
Home sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W09950302-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAY42861
  င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Side
                                                                                                                                                                                                                                                                                                                                   ANUMEA29 encodes AAR71694 mating factor alpha 1-insulin precursor Arghl, Arghla Nickeminal EEARARAR. The insulin precursor comprises the B and A chains of a claimed human insulin derivative preceded by the Niterinal amino acids EEARARAR. In the final claimed compstitute are covalently connected via disulphine bonds between Cystersidues A7/87 and A20/819, the derivative, which may be present as a zinc ion complex, can be used as a tast action freatment for
       Human insulin precursor ArgB1, ArgB31: d abetes; Zinc ion complex: mating factor alpha 1; N-terminal EEAEAF \forall.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human insulin precursor ArgBl, ArgB31: diabetes; Zinc ion complex; mating factor alpha 1; N-terminal EEAEAFAER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VEGCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mating factor alpha 1-Insulin precursor TGB1, ArgB31 N-terminal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                             Lengt: 145;
                                                                                                                                                                                                                                                                                        Acylated insulin deriv, which may be present as a Zinc ion complex - is used to treat diabetes and is rapid acting.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                        .I massemol.
                                                                                                                                                                                                                                                                                                                                                                                                                                         18 16:
4e 26:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
O
                                                                                                                                                                                                                                                                                                                                                                                                         (Updated on 25 MAR-2003 to correct PN field.)
                                                                   /label= mating factor alpha:
                                                                            86..93
/label- N-terminal peptide
                                                                                                                                                                                                                                       Halstrom JB, Haveland S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 FVNUHLGSSRLVEALYLVGGERGFFYTPKT
                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 294
100.0%; Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismate
                                                                                                                                                                                                                                                                                                                   Example 5; Pages 82-83; 100pp; English.
                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAR71695 standard, Profein: 146 AA
                                                                                            94..124
/label= B-chain
                                                                                                             125..145
/label- A-chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                           44W0-DK00 447
                                                                                                                                                                                          940K 0001.44
940S-0190829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity 100.
Nos 52, Conservative
                                                                                                                                                                                                                      (NOVO ) NOVO - NORDISK AS
                                                                                                                                                                                                                                                              WPI: 1995-131314/17
                                                                                                                                                                                                                                                                                                                                                                                                                         145 AA;
                                                                                                                                                                                                                                                                        N-PSDB: AAU86429
                                                                                                                                                                                          17 - SEP 1993;
02 - FEB - 1994;
                                                                                                                                                                                                                                      Andersen AS,
                                  Homo sapiens
                                                                                                                                        W09507931-A1
                                                                                                                                                                          16 SEP-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25 MAR 2003
20 NOV-1995
                                                                                                                                                                                                                                               Markussen J;
                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAR71695;
                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                    Key
Protein
                                                                                             Pept ide
                                                                            Pept 1de
                                                                                                               Pept 1de
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAR71695
g
```

```
AAQ86432 encodes AAk71695 mating factor aipha 1-Insulin precursor ArgB1, ArgB1 N-terminal EEA NEAER. The insulin precursor comprises the B and A chains of a claimed human insulin derivative preceded by the N-terminal amino acids EEAEARER. In the final claimed compsorthey are covalently connected via disulphide bonds between Cystresiducs A7/RP and A20/RB9 The derivative, which may be present as a zinc ion complex, can be used as a last action treatment for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Insulin; precursor; growth hormone; chaperone; intramolecular;
folding; conformation; chimeric protein; cleavable; recombinant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 294; DB 16; Length 146; 190.0%; Pred. No. 4.4e 26; ive 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Acylated insulin deriv. which may be present as a Zinc ion complex of is used to treat clamptes and is rapid acting.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Jonassen 1:
                                            /label- mating factor alpha-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Updated on 25-MAR-2003 to correct PN field.)
                                                                                    /labbi- N-terminal peptide
95.125
1-habbi- B-chain
126.1446
/label- A-chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Havelund S.
Socation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 6; Page 85; 100pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY42861 standard; protein; 150 AA
                                                                                                                                                                                                                                                                                                                                94WC-DKC0347
                                                                                                                                                                                                                                                                                                                                                                             930K 0001044
940S-0190829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Andersen AS, Halstron 18,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chimeric protein, SEC ID 7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Guery Match
Best Local Similarity 100.c.
These 52: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-JAN-2000 (first oniry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                  SA ASCURANTOVOM ( FACINISM AS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI: 1995-131314/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 146 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  production: yield
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB: AAQ86432.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens.
                                                                                                                                                                                                                                    W09507931-A1
                                                                                                                                                                                                                                                                                                                                                                             12 SEP-1993;
02-PER 1994;
                                                                                                                                                                                                                                                                                                                             16-SEP-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Markussen J;
                                                                                                                                                                                                                                                                                   23-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAY42861;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           diabetes
                      Protein
                                                                   Peptide
                                                                                                               Pept.ide
                                                                                                                                                              Peptide
```

0

```
/label- Insulin A chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1991-141828/20
                                                                                                                                                                                                                                                                                                                                                                                         57 AA;
                                                                                                                                                                                                   N-PSDB: AAQ04335
                                                                                                                                                                                                                                       to tendamistate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-MAY-1985;
                                                                        28-OCT-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25-MAR 2003
22-JUL-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-NOV-1990;
                                                                                                 33-N-)V-1988;
                                                                                                             19-AUG-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-MAY-1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08-FEB-1985;
                                                  06-MAY-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-MAY-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EP427296-A.
                          EP367163-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR! 1899;
                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR11899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                     This sequence represents a chimeric protein, which contains an Kiterminal framment of human growth hormone (NGS) of the sequence given in AAV4265, a cleavable peptide linker (AAV42657), and a brown issuits precursor comprising linking to elaune (AAV42659). The BH portion of the chimeric provein area as an intra-received the High portion of the inserin precursor, ambling it to foll contectly. The character perturbation of the chimeric protein to be removed after building has the host portion of the chimeric protein to be removed after folding has taken place.
                                                                                                                                                                                                                                                                                                                                                                                                           interactions among the fusion profess. Thus allowing folding of the fused insulin precursor at commercially useful high concentrations. The procedures steps of eyanogen bromide cleavage, oxidative sulphitolysis and related purification steps can thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic absorbent
                                                                                                                                                                                                                                                                                                                        Production of recombinant human insulin via an hGH-proissulin chizeric protein can provide human insulin with correctly linked cystice bridges will fewer necessary procedural steps, and hence resulting in a higher yield of human insulin. The IMC sequences not only protect insulin sequences from intracelular degradation by a microorganism host, but also promote the folding of the fusel insulin precursor, lacilitate the solubility of the fusion protein and decrease the intermojecular.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /label-Lys residue linking insulin B chain to A chain
                                                                                                                                                            New chimeric proteins containing human growth hormone fragment, used particularly for the production of human insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Proinsulin analogue with a Lys residue 'inking the A and B chains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 FVNOHLGGSHLVEALYLVGGERGFFYTPKTRGIVEQCCTSIGSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             insulin fusion protein; pro-insulin ana.oque; tendamistate;
Lys Lys bridge; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 294; DB 20; 100.0%; Pred. No. 4.5e-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                  (TONG-) TONGHUA GANTECH BIOTENHNOLKSY LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /label= Insulin B chain 37..57
                                                                                                                                                                                               Claim 14; Page 30-31; 46pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR04582 standard: protein; 57 AA
                                   98WO-CN00052
                                                           98WO-CN00052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  52; Conservative
                                                                                                                                   WPI; 1999-610839/52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   150 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc-difference
                                   31 MAR-1998;
                                                           41 - MAR- 1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14 SEP 1990
         07 OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR04582;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pept ide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pept.ide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              soisoi
                                                                                                            Gan 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 14
AAR04582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
```

```
This seepende is persented the Citeranns of an Miterminal fragment complexing opt, a direct tenderistate. This lusion protein may be converted into number insulin using known methods. The synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6 FUNDHLCGSHLVEALYLVCGERGFFYTPKTKGIVEOCCTSICSLYOLENYCN 57
                                                                                                                                                                                                                                                                      New insulin fusion proteins comprise pro-insulin analogue linked
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Thim L;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 291; DB 11;
Pred, No. 3.80-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  qene was prepared by the phosphoramidite method
See also ANG438.
(Updated on 25 MAR-2063 to orrect PR field.)
(Updated on 25-MAR-2003 to orrect P: lield.)
                                                                                                                                                             Wallmeier H;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fiil N, Ammerer G, Hansen MT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human insulin; diabetes; transpeptidation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Example of human insulin precursor.
                                                                                                                                                             Uhlmann E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR11899 standard; Protein; 52 AA.
                                                                                                                                                                                                                                                                                                                                         Dischasure: Page 7: App. German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99.08;
98.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 84DK - 0002665.
85DK - 0000582.
                                             880E-3837273.
890E-3927449.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90EP-0121887
89EP-0120056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90EP - 0121887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (lirst entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (NOVO ) NOVO-NORDISK AS
                                                                                                                                                        Koller KP. Riess GJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (updated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Markussen J, Fii.
Voigt HO;
                                                                                                                                                                                                      WPI: 1990-141149/19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 51: Conserv
                                                                                                             (FARH ) HOECHST AG.
```

ö

```
Human insulin; recombinant production; amorphous; monospherical form; diabetes mellitus.
                                                                                                                                                                                                                                                                                                ×.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This sequence is a specific example of an insulin derivative which can be obtained in amorphous, monospherical form by dissolving in an opropanol/buffer mixture (pH 4.5-6.5) having n-propanol content 15% relative to water. The solution is then diluted with water to
                                                                                This human insulin precursor has correct y positioned disulphide bridges between the A and B chains and i more resistant to proteolytic dyestion than prior art insulin precursors. Yeast strains transformed with DNA encoding this precursor can be cultured to secrete it in high yields. The precursor can be conveited into mature human insulin by transpeptidation. See also AARIS97-98.

(Updated on 25-MAR-2003 to correct PF Lield.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Amorphous, mono-spherical form of insulin derivs. For treating diabetes mellitus, are produced by diluting soln. in aq. isopropanol, are stable when dried or in suspension
                                                                                                                                                                                                                                                                                                                          1 EVNÇHIZGSHIVEALYINGGEROFFTIFKIRGIVEQPCISTGSINGLENYON 52
                                                                                                                                                                                                                                                                                                                                           1 FVNOHLGGSHLVEALYLVGGRAFFYFPKSKGIVEQCTSIGSLYQLENYCN 52
            Human insulin precursors - expressed with correctly positioned disalphide bridges giving improved resistance to proteolysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Di-Arg-(B31-32)-Human insulin amorphous, monospherical deriv.
                                                                                                                                                                                                                                                                 97,68, Service 247, 88 12; (Anoth) 52;
96,38, Fred Wey Services
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens (produced recombinantly in Escherichia coli).
                                                                                                                                                                                                                                                                                               Slogers C
                                                                                                                                                                                                                                                                                             2 M. Smartelleys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sabel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1..30
/label- insulin_B-chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label- insulin_A chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR6588} standard: protein: 5: AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Obermeier R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example 2; Page 5; 10pp; German.
                                                        Claim 3; page 18; 28pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94EP-0106196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        93DE-4313702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (updated)
(first entry)
                                                                                                                                                                                                                                                                               Local Similarity 96.2
os 50. decservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WP1: 1994 - 314579742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Deil P. Geisen K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (FARE ) HUECHST AG
                                                                                                                                                                                                                                      52 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21 - APR - 1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27-APR 1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-MAR-2003
26-30N 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EP522376-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               02 NOV 1994
                                                                                                                                                                                                                                        Seguence
                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR65883:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein
                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 15
AAR65883
                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                  ŝ
                                                                                                                                                                                                                                                                                                                                                        g
```

```
CC reduce a propanol content to below 15%. The resulting insuling CC reduce a propanol content to below 15%. The resulting insulin perparation is stable and can be used for the treatment of diabetes CC molitums.

CC (Updated on 25-MAR-2003 to correct PN field.)

XX

SQ Sequence 53 AA;

Query Match

Best Local Similarity 98.1%; Pred. No. 2.56-25;

Matches 52; Conservative 0; Mismatches 0; Indels 1; Gaps 1;

OY | FVNOHLOGSHLVEALYLVGGERGFFYTPKT KGIVEGCTRICSLYGLENYON 52 | 1 FVNOHLOGSHLVEALYLVGGERGFFYTPKTKKGIVEGCTRICSLYGLENYON 53 |

Search corp.letch: September 15, 2003, 12:00:59

Scarch corp.letch 57:5365 seeks
```

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

OM protein - protein search, using sw model

September 15, 2003, 11:57:46 : Search time 11:9283 Seconds (ithout alignments) 184.449 Million ceil updates/sec Run on:

US-09-423-100-5 294 Title: Perfect score. Sequence:

1 FVNQHLCGSHLVEALYLVCG......IVEQCCTSICSLYQLENYCN 52 BLOSUM62 Scoring table:

328717 seqs, 42416858 residues Searched:

Gapop 10.0 , Gapext 0.5

Total number of hits satisfying chosen parameters

Minimum DB seq Tength: 0 Maximum DB seq Tength: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database

1: /cyn2_6/ptodata/1/iaa/5A_L ...pop:*
2: /cyn2_6/ptodata/1/iaa/5B_Ct ..pep:*
3: /cyn2_6/ptodata/1/iaa/6A_Coun.pep:*
4: /cyn2_6/ptodata/1/iaa/6B_COMB.pep:*
5: /cyn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
6: /cyn2_6/ptodata/1/iaa/pCTUS_COMB.pep:* Issued_Patents_AA: *

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

		2000						
NO.	Score	Match	Match Length DB	DB	10		Description	c:
-	294	100.0	95	-	08-C8	160-176A-7	Sequence	7, Appli
7	767	100.0	99	~	US-08-	389-487-11	Sequence 1	11, Appl
~ .	294	100.0	63	-	08 - 08	-160 376A-6	Sequence	6, Appli
4	294	0.001	99	-	08 · 08	-291-060B-5	Sequence	5, Appli
S	294	100.0	96	-	0S-08	160-376A-5	Sequence	5, Appli
Q	167	100.0	96	•	08-08-	384 487-8	Sequence	B, Appli
7	294	100.0	137	~	08-68-400	400 256-39		39, App.
œ	294	100.0	137	~	US-08-975	-975-365-39	Sednence	39, Appl
თ	294	100.0	145	7	08 - 08	400-256-45	Sequence 4	45, App)
01	294	100.0	145	~	US-08-975	975 365-45	Seque ice 4	45, Appl
Ξ	757	100.0	146	-4	$0.8 \cdot 0.8$	400-256-48	Sequence 4	48. Appl
13	294	0.00:	146	~	13.08	08-08-975-365-48	Sequence	48, Appl
1.3	291	0.66	57	٦	US-08	US-08-030-731A-44	Sequence 4	44, Appl
14	284.5	4.96	53	_	US-08	US-08-234-617-4	Seguence	4, Appli
15	284.5	96.4	53	4	08 - 08	US-08-981-988A-42	Seguence	42, Appl
16	278.5	94.7	51	4	US-09-477	-477-924 3	Seguence	3, Appli
17	278.5	94.7	51	4	60-80	US-09-723-981 3	Sequence	3, Appli
38	278.5	94.7	51	**	60-SN	US-09-723-896-3	Sednence	3. Appli
19	277 5	94.4	53	-	0.8-08-		Sequence	3, Appli
70	277	94.2	65	~:	US-08-500	-900 574-3	Seguence	3, Appli
7.	276.5	0.46	55	نم)	us-08-	-900-574-6	Seguence	6, Appli
55	276.5	94.0	99	~	-006-80-SD	-900-574-5	Sequence	5. Appli
23	276.5	0.46	67	4	US-08-981	-981-988A-1	Sequence	1, Appli
24	276.5	0.16		4	US-08-	-981-988A-5	Sequence	5, Appli
25	276	93.9	67	~	0S-08	US-08-900-574-7	Sednence	7, Appli
56	275.5	93.7	53	~	US-09-261	-261-853-2	Sequence	2, Appli
27	275.5	93.7	65	-	15-08	-468-674B-71	Segmente	71 Ann

ó

0; Gaps

100.0%; Score 294; DB 1; Length 56; 100.0%; Pred. No. 4.9e-29; ative 0; Mismatches 0; Indels

Query Match Best Local Similarity 100. Matches 52: Conservative

LENGTH: 56 Amino Acids TYPE: Amino Acid (AA) TOPOLOGY: not re:evant

not re:evant

US-08-160-376A-7

Sequence 11, Appl Sequence 41, Appl Sequence 45, Appl Sequence 45, Appl Sequence 15, Appl Sequence 15, Appl Sequence 17, Appl Sequence 37, Appl Sequence 37, Appl Sequence 34, Appl Sequence 42, Appl Sequence 42, Appl Sequence 42, Appl Sequence 42, Appl Sequence 2, Appl Sequence 2, Appl Sequence 2, Appl Sequence 42, Appl Sequence 42, Appl Sequence 42, Appl Sequence 42, Appl Sequence 42, Appl Sequence 44, Appl Sequence 44, Appli		
93.7 65 1 US-08-780-571 71 93.7 89 1 US-08-468-6748-41 93.7 91 1 US-08-780-571 41 93.7 91 1 US-08-780-571 45 93.7 104 1 US-08-780-571 45 93.7 104 3 US-08-780-571 45 93.7 117 3 US-08-780-515 93.7 124 1 US-08-786-15 93.7 124 3 US-09-012-669F-37 93.7 124 3 US-09-012-669F-37 93.7 140 3 US-08-400-256 33 93.7 140 3 US-08-400-256 33 93.7 140 3 US-08-975-365-38 93.0 67 4 US-08-975-365-38 93.0 67 4 US-08-975-365-37 93.0 67 4 US-08-975-365-37	SULI: -08-160-376A-7 Sequence 7, Application US/08160376A Patent No. 5473049 CENERAL INFORMATION: APPLICANT: Obermeior, Ractor APPLICANT: Gorl, Martin APPLICANT: Gorl, Martin TITLE OF INVENTION: Process For obtaining Proinsulin TITLE OF UNENTION: Process For obtaining Province TITLE OF UNENTION: Process For obtaining Province TITLE OF UNENTION: Process For obtaining Province TITLE OF UNENTION PROFILE TITLE OF UNENTION PRO	11NDOW. 171 5. 171 5. 171 171 6. 171 171 171 171 171 171 171 171 171 171
288 330 331 275 331 275 334 277 337 277 338 337 277 338 337 277 277 277 277 277 277 277 277 277	BESULI: US-08-160-3764-7 Sequence 7, Application US Patent No. \$473049 CENERAL INFORMATION: APPLICANT: Obermeior, APPLICANT: Ludwig, Jur APPLICANT: Ludwig, Jur APPLICANT: Sabel, Walt TITLE OF INVENTION: PO TITLE	COMPUTER: IBM 386 OPERATING SYSTEM: WIND SOFTWARE: WORDFERFECT CURRENT APPLICATION DAIA: APPLICATION NUMBRE: US FILING DATE: December CLASSIFICATION NUMBRE: US PRIOR APPLICATION LAIA: APPLICATION NUMBRE: GF FILING DATE: December FILING DATE: December ATTORNEY/AGENT INFORMATION REGISTRATION NUMBER: 3 REFERENCE/DOCKET NUMBER: 3 REFERENCE/DOCKET NUMBER: 3 REFERENCE/DOCKET NUMBER: 3 REFERENCE/DOCKET NUMBER: 3 REFERENCE GORGATION INFORMATE TELECHONE: (908) 231-42 TELEFRAX: (908) 231-42 TELEFRAX: (908) 231-23 SEDOBLEC CHARACTERISTICS: LENGTH: 56 Amino Acids
	3 S S S S S S S S S S S S S S S S S S S	

```
Gaps
1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRG1: OCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query March 100.0%; Score 244, DB 1; Length 56; Best Local Similarity 100.0%; Pred. No. 4.9e-25; Matches 52; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                     APPLICANT: Obermeler, Rainer APPLICANT: Gerl, Martin APPLICANT: Gerl, Martin APPLICANT: Ludwig. Jurgen APPLICANT: Sabel, Walter TITLE OF INVENTION: Process for Obtaining Insulin Having TITLE OF INVENTION: Orrectly Linked Cystine Bridges CORRESPONDENTE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APELICANT: Obermeier, Ranier
APELICANT: Gerl, Martin
APELICANT: Gerl, Martin
APELICANT: Loudid, Jurgen
APELICANT: Sabel, Walter
TITLE OF INVENTION: Process For Obtaining Proinsulin
TITLE OF INVENTION: Possessing Correctly ked
TITLE OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: Finnedan, Wenderson, Faratow, Garrett &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUFFMARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/389,487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02481.1424-00000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4Y: United States of America 20005-3315
                                                                                                         RESULT 2
US-08-389-487-11
US-08-389-487-11
Sequence 11, Application US/08389487
Patent No. 5663291
GENEMAL INFORMATION:
RAPPLICANT: Obcemeler, Rainer
APPLICANT: Get1, Martin
APPLICANT: Ludwig, Jurges
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
CPERATING SYSTEM: PC-DGS/MS DGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 6, Application US/08160376A
Patent No. 5473049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
NAME: Finand, Carol P.
REGISTRATION NUMBER: 32,220
REFERENCE/COCKET NUMBER: 0248
TELEPHONE: 202-408-4000
TELEPHONE: 202-408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                           Mashington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION FOR SEQ ID NO: 11:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: peptide US-08-389-487 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 530
                                                                                                                                                                                                                                                                                                                                                                                                                             fattiner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 3
US-08-160 376A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

```
Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 FVNQHLCGSHLVFALYLVCGERGFFYTPKTRGIVEGCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12 FVNOHLGGSRLVEALYLVGGERGFFYTPKTRGIVEGUGGSLCSLYQLENYCN 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Borschug, Michael
APPLICANT: Koller, Klaus-Peter
APPLICANT: Marquardt, Raiger
APPLICANT: Marquardt, Marquardt,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: Finnegar, Henderson, Farabow, Garrett
                                                                                                                                                                                                                                                                                                           DISKETTE, 3.5 INCH, 1.44 MD STORAGE
STREET: Rt. 202-206 No. 5473049th/P.O. Box 2500 CITY: Somerville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.80
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 294; DB 1;
100.0%; Pred. No. 5.6e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: December 1, 1993
CLASSIFICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
FILING DATE: December 2, 1992
FILING DATE: December 2, 1992
ATTORNEY AGENT: DECEMBER 2, 1992
NAME: Barbara V, Mairer, Esq.
RESISTEMBRICON MABBER: HOE 92/F 644
FELENGEZ/MATION MABBER: HOE 92/F 644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/08/160,376A
FILING DATE: December 1, 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/08/291,060B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 5, Application US/UB29106UH
Patent No. 5728543
                                                                                                                                                                                                                                                                                                                                                                                       OPERATING SYSTEM: WINDOWS 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Einaudi, Carol P. REGISTRATION NUMBER: 32,220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E: Dunner, L.L.P.
1300 I Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: WORDPERFECT 5.1 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (908) 231-4079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (908) 231-2255
INFORMATION FOR SEQ ID NO: (
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cuery Match:
Best Local Similarity 100.(
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63 Amino Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: Amino Acid (AA) TOPGLOGY: not relevant
                                                                                                                                                                                                          ZUP: 08876-1258
COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETTE
COMPUTER: IBM 386
                                                                                                                                               New Jersey
: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Y: USA
20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CS-08-160-376A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-291-060B-5
                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET:
CITY: Wa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                     CITY: STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QΩ
```

```
Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 FVNQHLCGSHJVEALYLVCGERGFFYTFKTRGIVEQCCTSICSLYGLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15. TELLET COLLETTE COLLETTE COLLETTE COLLETS COLLETS COLLETS CALLETY 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 100.0%; Score 294; DB 1; Length 66; Best Local Similarity 100.0%; Pred. No. 5.9e-29; Matches 52; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 294. DB 1; Length 96; 100.0%; Pred. No. 8.8e-29; tive 0; Mismatc.es 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TILLE OF INVENTION: Process For obtaining Proinsulin
TITLE OF INVENTION: Possessing Correctly Linked
TITLE OF INVENTION: Cystine Bridges
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 08876-1258
COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETTE, 8.5 INCH, 1.44 MI: STORAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SSEE: Kenneth A. Genoni, Esq.
1. Rt. 202-206 No. 5473049th/P.U. Box 2500
Somerville
REFERENCE/DOCKET NUMBER: 02481.1105-02030 TELECOMMUNICATION INFORMATION: TELEPHONE: (202) 408-4366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE/DOCKET NUMBER: HOE 92/F 3d4 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NOMBER: GE P 4240420.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/08/160.376A FILING DATE: December 1, 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cystine Bridges
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 5, Application US/08160376A Patent No. 5473049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: December 2, 1992
ATTORNEY/AGENT INFORMATION:
NAME: Barbara V. Maurer, Esq.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OPERATING SYSTEM: WINDOWS 4.1 SOFTWARE: WORDPERFECT 5.1 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 31,287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Obermeier, Ranier
APPLICANT: Gerl, Martin
Gerl, Gerl, Gerl, Martin
APPLICANT: LUGWIG, JUTGEN
APPLICANT: Sabel, Walter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE: (908) 231-4079
TELEFAX: (908) 231-2255
INFOHMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
                                                                                                                              TELEFAX: (202) 408 44400
INFORMATION FOR SEO ID NO: SEGUENCE CHARACTERISTICS: ENGTH: 66 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match
Best Local Similarity 100.0
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96 Amino Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: Amino Acid (AA)
                                                                                                                                                                                                                                                                                                                                                                                single
                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18M 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE: New Jersey
COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IHM 386
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                           TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AL/ORESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08 160 476A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-160-376A S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-291-060B-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      đ
```

```
No. 57504970 No. 5750497disk of No. 5750497th America, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
1 FVNQHLGGSHLVEALYLVCGERGFFYTPKTRGIVEQCGTSICSLYGLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ouery Match 100.0%: Score 244; DB 1; Lenath 96; Best Lonal Similarity 100.0%; Pred. No. 8.8e 25; Matches 52; Conservative 0; Mismatches 0; Indeis
                                                                                                                                                                                                                  APPLICANT: GCTI, Martin
APPLICANT: GCTI, Martin
APPLICANT: Ludwig, Jurgen
APPLICANT: Subel, Marter
TITLE OF INVENTION: Process for Obtaining Insulin Having
TITLE OF INVENTION: Correctly Linked Cystine Bridges
NUMBER OF SEQUENCES: 12
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Finnegan, Henderson, Farakow, Garrett, & Aldokessee: Conner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC Compatible
OPENATIMG SYSTEM: PC-DOS/48-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32481,1424-00005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            405 Lexington Avenue, 64th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Havelund, swend
APPLICANT: Halstrom, John
APPLICANT: Andersen, Ib
APPLICANT: Andersen, Asser Sloth
APPLICANT: Markussen, Jan
11TLE OF INVENTION: ACYLATED INSULIN
NUMBER OF SEQUENCES: 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: United States of America
ZIP: 20005-3415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/06/389,489/
FILING DATE: CLASSIFICATION: 530
ATTORNEY/AGENT INFORMATION: NAME: Einaudi, Carol P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 39, Application US/084U0256
Patent No. 5750497
                                                                                                                              Sequence 8, Application US/08389487
Patent No. 5653291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REGISTRATION NUMBER: 32,, 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: )2
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                    1300 1 Street, N.W.
                                                                                                                                                                                               APPLICANT: Obermeier, Rainer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 202-408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 202-408-4400
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 96 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      202-408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-389-487-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                             STAFET: 1300 1 St
CLIY: Washington
SIATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            amino acid
                                                                                                                                                                               INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US 08-400-256-39
                                                                                                      US-08-389-487-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 7
                  싎
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŝ
```

·.

0

Gaps

ö

1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52

ò

```
212-857 0123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: New York
STAIE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                   US 08-400-256 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 10
US-08-975-365-45
                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                             RESULT 9
                                                                                                                                                                                                                                                                                                                                3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       đ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APORESSEE: No. 6011007o No. 6011007disk of No. 6011007th America, Inc. STREET: 405 Lexington Avenue, 64th Floor CITY: New Yor?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 FVNUHLCGSHIVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 137;
                                                                                                               COMPUTER: IBM PC Compatible
COMPUTER: IBM PC COMPATIBLE
COPERATING SYSTEM: PC-005/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION WINDER: US/08/400,256
FILING DATE: 03-MAR-1995
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: Patentin Release #1.0, Versi i #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 294; DB 1;
100.0%; Pred. No. 1 36-28;
tive 0; Mismatches 0;
                                                                                                                                                                                                                                         CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Lambiris, Elias J.
NEGISTRATION NUMBER: 33,728
REFERENCE/DOCKET NUMBER: 3985.220-US
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TORNETZAGGA, ....
NAME: Lambiris, Elias J.
REGISTRATION NUMBER: 33,728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Haveland, svend
APPLICANT: Halstrom, John
APPLICANT: Johnssen, Ib
APPLICANT: Johnsesen, Ib
APPLICANT: Markussen, Jan
KOMBER GF SEGUENTES: 49
CORRESPONDENCE ADDRESS:
                                     United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: United States of America 21P: 10174 6401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRICK APPLICATION DATA:
APPLICATION NUMBER: US 08/400,256
FILING DATE: 03-MAR-1995
ATTURNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/08/975,35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DXS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 39, Application US/08975365 Patent No. 6011307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ 15 NO. 44:
                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                   212-867-0123
                                                                                                                                                                                                                                                                                                                                                                                                                                                    147 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 100.
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                       212 878 9655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 514
          STATE.
COUNTRY: Unic.
10174-6401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE
                                                                                                                                                                                                                                                                                                                                                                   TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-400-256-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-975-365-39
                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
```

```
0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: No. 57504970 No. 5750497disk of No. 5750497th America, Inc.
STREET: 405 Lexington Avenue, 64th Floor
                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                         1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 FVNQHLCGSHLVEALYLVCGERGEFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                    100.0%; Score 294; DH 4; Length 137; 100.0%; Pred. No. 1.3e 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 294; DB 1; Length 145; 100.0%; Pred. No. 1.40-28;
                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OPERATING SYSTEM: PC. DOS/MS-DOS
SOFTWARE: Patentin FC:ease #1.0, Version #1.25
CURRENT APPLICATION DAIA:
                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3985, 220-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Jonassen, ib
APPLICANT: Andersen, Asser Sloth
APPLICANT: Markussen, Jan
TITLE OF INVENTION: ACYLLATED INSULIN
NUMBER OF SEQUENCES: 49
CORRESPONDENCE AUDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: United States of America 21p: 10174-6401
COMPUTER READBLE FORM: MEDIUM TYPE: Floppy disk COMPUTER: 1BM PC COMPALIBLE OFFERTING SYSTEM: PC-055/MS-FOS
                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 45, Application USZ08400256
Patent No. 5750497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: LAMD/FIS, Elias J.
REGISTRATION NUMBER: 3995
REFERENCE/OOCKET NUMBER: 3995
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                              .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
TELEFAX: 212-878-9655
INFORMATION FOR SEQ ID NO: 39:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO: 45:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Havelund, Svend
APPLICANT: Halstrom, John
                                                               LENGTH: 137 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       212-867-0123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            145 amino acids
                                                                                                                                                                                                        Best Local Similarity 100.
Matches 52: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 100.
Matches 52; Conservative
                                                                                                    ; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-975-365-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
FILING DATE: 03-MAK
                                                                                amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amino acid
```

```
MEDIUM TYPE: Fioppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEG ID NO: 48: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO: 48:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Havelund, Svend
APPLICANT: Halstrom, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 100.08
Matches 52, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               146 amino acids
                                                                                                                                                                                                                                                                                                                                                         146 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lambiris, Elias J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERIST.CS:
                                                                                                                                                                                                                                                                                                                                                                                                                 1 MOLECULE TYPE: profections 08 - 400, 256 - 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                          amine acid
                                                                                                                                                                                                                                                                                                                                                                                                  I Post
                                                                                                                                                                                                                                                                                                                                                                                              TOPERACY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 12
US-08 975-365-48
                                                                                                                                                                                                                                                                                                                                                         LENGTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                 SSEE: No. 60110070 No. 6011007disk of No. 6011007th America, Inc. : 405 Lexington Avenue, 64th Floor New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E: No. 5750497o No. 5750497Jisk of No. 5750497th America. Inc.
405 Lexington Avenue, 64th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 145:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: Patentin Release #1.5. Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/975, 865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 294; DB 3; 106.0%; Pred. No. 1.4e-28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 48, Application US/08400256
Patent No. 5750497
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Halstrom, John
APPLICANT: Jonassen, 13b
APPLICANT: Markussen, 13b
APPLICANT: Markussen, 3an
TILLE OF INVENTION: ACYLATED INSULIN
NUMBER OF SEQUENCES: 49
CORRESP-NOENTE ADDRESS:
                                                         APPLICANT: Havelund, Svend
APPLICANT: Havelund, John
APPLICANT: Jonassen, Ib
APPLICANT: Andersen, Asser Sloth
APPLICANT: Markussen, Jan
IITLE OF INVENTION: ACTLATED INSULIN
NUMBER OF SEQUENCES: 49
                                                                                                                                                                                                                                                                                                    4Y: United States of America
10174-6401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRICK APPLICATION DATA:
APPLICATION NUMBER: US 08/400,256
FILING DATE: 03-MAR-1995
ATTOKNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       United States of America
                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk
COMPUTER: HM PC compatilio
OPERATINS SYSTEM: PC-DOS/MS DOS
Sequence 45, Application US/08975365
Patent No. 6011007
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REGISTRATION NUMBER: 33,728 KEFERENCE/DOCKET NUMBER: 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELECOMMUNICATION INFORMATION: TELEPHONE: 212-867-0123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO: 45:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 145 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lambiris, Elias J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
Best Local Similarity 106.0
Matches 52, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 10174-6401
COMPUTER READABLE FORM:
                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       inear
                                                                                                                                                                                                                                                                                       New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPULOGY:
                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-400-256-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-975-365-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET
                                                                                                                                                                                                                                                                                   STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
```

```
ADDRESSEE: No. 60116070 No. 6011007Jisk of No. 6011007th America, Inc. STREET: 405 Lexington Avenue, 64th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 EVNOHLOGISHLVEALYLVIGGERGFFYTPKTROLVEQUITSLIGSLYQLENYGN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Score 294; DB 1; Length 146;
100.0%; Pred, No. 1.4e-28;
Live 0; Mismatches 0; Indels
SOFTWARE: Putentin Felease #1.0, Version #1.25 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/400,256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                    CLASSIFICATION: 514
ATTOKNEY/AGENT INFOHMATION:
NAME: Lambiris, Elica, 3,728
REGISTRATION NUMBER: 3,728
REFERENCE/DOCKET NUMBER: 3985.220-US
TELEPRONE, 212-85/-0123
TELEFAX: 212-878-9655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      185.220-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: New York
STAIE: New York
STAIE: New York
COMPUTER: United States of America
ZIP: 10174 6401
COMPUTER READABLE FORM:
MEDIAM TYPE: Floppy disk
COMPUTER: 1BM PC compatib; 9
OPERATING SYSTEM: PC-DOS/MS:19)S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Jonassen, 1b
APPLICANT: Andersen, Asser Sloth
APPLICANT: Markissen, Jan
TITLE OF INVENTION: ATYLATED INSCLIN
NUMBER OF SEQUENCES: 49
CORRESPUNDENCE ADDRESS:
                                                  FILING DATE: 03-MAR-1995
FILING DATE: 03-MAR-1995
GLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/400,256
FILING DATE: 03-MAR-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/08/975.36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 46, Application US/08975365 Patent No. 6011007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           33,7 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REGISTRATION NUMBER: 33.7 6
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION
```

·.

us-09-**42**3-100-5.rai

```
TELEFAX: 202-408-4400
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE: D
                                                                                                                                                                                                                                                                                                                           08-0F 233 517-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-233-617-4
                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY:
                                                                      TYPE
                                                                                                                                                                                                                                                                                                                                                             Fullent No.
                                                                                                                                                                                                                                                                                                          PESSI 1 14
                                                                                                                                                                                                                           င်
                                                                                                                                                                                                                                                        d:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                   ;
0
                                                                                                                      Gaps
                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: Processes for the Preparation of Foreign TITLE OF INVENTION: Proteins in Streptomycetos NUMBER OF SEQUENCES: 48
                                                                                  Length 146;
                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Garrett &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWAKE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/0+0,731A
                                                                               100.0%; Score 254; DB 3;
100.0%; Pred, No. 1.4e-28;
ative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     02481-0593-02000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1300 I Street, N.W., Shite 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Finnegan, Henderson, Farab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      UMBER: DE P 40 12 818.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: DE P 37 14 866.4 FILING DATE: 05-MAY-1987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            UMBER: DE P 18 37 273,8
03-NOV-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: DE P 39-27-449.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILLING DATE: 12-MAR-1993
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 07/440,622 FILING DATE: 01-NOV-1989 PRIOR APPLICATION DATA: APPLICATION NUMBER: US 07/687,610 FILING DATE: 19-APR-1991
                                                                                                                                                                                                                                                                                                     INCORMATION:
JANI: Koiler, Kraus Peter
AMI: Kress, Sueurber Casares
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/189,840
FILING DATE: 03-MAY-1988
PRICR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4UMBER: US 07/735,757
29-JUL-1991
                                                                                                                                                                                                                                                               Sequence 44, Application US/08030731A
Patent No. 5426036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER REALABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: 18M PC COMPATIE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kirschner Michael K.
RATION NUMBER: 34,851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/POCKET NUMBER: 02
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Unimenn, Eugen
APPLICANT: Wallmerer, Molger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-AUG-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION
                                                                Ouery Match
Best .ocal Similarity 100.0
...... 52; Conservative
                              ; MOLECULE TYPE: protein US-08-975-365-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRICE APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RECISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Washington
 amino acid
                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                    US-08-030-731A-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE:
                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE
                                                                                                                                                                                                                                                                                                                     APPLICANT APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
TYPE
                                                                                                                                                                                                                                                                                                       GENERAL
                                                                                                                                                                                    q
```

```
Ċ
                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 FVNQHLCGSHLVEALYLVGGERGFFYTPKT - RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                              1 FVNOHLOGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                   6 PVNOHLCGSHLVEALYLVGGERGFFYTPKTKG1VEGCTSICSLYQLENYCN 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
                                                                                                                                                                           ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Amorphous Manospherical Forms of Insuits
Derivatives
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 283.5; DB 1; Length 53; Pred, No. 8.8e-28; 0; Mismatches 0; Indels
                                                                                                                             Score 291, DB 1; Length 57;
Pred. No. 1.2e+28;
1; Mismatches 6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Finnegan, Henderson, Faranow, Garrett & ADDRESSEE; Dunner
STREET: 1300 I Street, N.K., Suite 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.8e-28;
03:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IBM PC Compatible
OPERATUM SYSTEM: 0C-18x3/MS bvs
SOFTWARE: Fatenile Pclease #1.6, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER: 02481.1374.00060
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/08/233,617
FILLING DATE: 25-APR-1994
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
APPLICATION NUMBER: P 43 13 752.4
FILING DATE: 27.4874.593
ATTOHNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                Sequence 1. Application US/DEZ (46)?
Patent, No. 5466565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Carol P. Einaudi
REGISTRATION NUMBER: 32,220
                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Obermeier, Rainer
APPLICANT: Sabel, Walter
BAPLICANT: Dell. Pet :
APPLICANT: Geisen, F :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Escherichia coli
                                                                                                                                  99.08;
98.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96.48;
98.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      202 408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match
Best Local Similarity 98.18
Matches 52; Conservative
SEQUENCE CHARACTERISTICS:
LENGIH: 57 amino acids
                                                                                                                                                    Best Local Similarity 98.17
Matches 51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       53 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: 202-408-4450
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202-408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: protein ORIGINAL SOURCE:
                                                   TOPOLOGY: unknown
MOLECULE TYPE: peptide
US:08-030-731A-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SECUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION:
                                       amine acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Incar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20005 - 3315
                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  D.C.
USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDIUM TYPE:
```

1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRRGIVEQCCTSICSL/YQLENYCN 53

Op

```
RESULT 15
US-08-81-988-42
US-08-81-988-42
US-08-81-988-42
US-08-81-988-42

Sequence 42. Application US/08981988A
Patent No. 633194

Farent No. 633194

APPLICANT The University of Leicester
TITLE OF INVENTION: Insulin
APPLICANT THE UNIVERSES:
ATTENDED TO THE UNIVERSES OF TH
```

Search completed: September 15, 2003, 12:65:32 Job time : 11.9283 secs

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

OM protein - protein search, using sw model

September 15, 2003, 12:03:35; Search time 21.8065 Seconds (without alignments) 347.945 Million cell updates/sec Run on:

US-09-423-100-5 294 Title: Perfect score:

1 FVNQHLCGSHLVEALYLVCG......IVEQCCTSICSLYQLENYCN 52

Gapop 10.0 , Gapext 0.5 Scoring table:

Sequence:

541936 seqs, 145912426 residnes Searched:

Lits satisfying choses, parameters. Total number of

length: 6 length: 2000000000 Minimum DB seq Maximum DB seq Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Published_Applications_AA:* Database :

10:

/cgn2_6/ptodata/l/pubpaa, IS60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARTES

		æ					
Result No.	80016	Suery Match	Ouery Match Length DB	DB	01	Description	
	294	100.0	52	14	US-10-054-873-5	Sequence 5, Appli	
7	794	100.0	107	14	US-10-054-8 (6		
~	294	100.0	150	7	US-10-054-874-7	Sequence 7, Appli	
₹	278.5			ון	S-8' - 6-858 - 60-SN	Sequence 5, Appli	
~	278.5	94.7	5.1	14	US-10-028-4 1-3	Sequence 3. Appli	
ع	275.5			10	US-09-894-711-18	Sequence 18, Appl	
7	275.5			10	US-09-861-687-19	Sequence 19, Appl	
œ	273			14	US-10-066-009A-3	Sequence 3, Appli	
5	797			10	US-09-878-380-1	٦,	
10	267			7	US-09-858-935B-4	Ť	
11	267			14	US-10-028-410-2	Sequence 2, Appli	
12	267			7	US-10-054-873-4	Sequence 4, Appli	
13	267			10	US-09-947-563-4	4	
14	267		110	6	US-09-205-658-125	125,	
15	267		-	9	US-09-815-229-3	<	

LENGTH: 52 amino acids TYPE: amino acid

Sequence 9, Appli Sequence 6, Appli Sequence 1, Appli Sequence 2, Appli Sequence 63, Appli Sequence 63, Appli	sequence 12, Appl Sequence 12, Appl Sequence 10, Appl Sequence 10, Appl Sequence 10, Appl Sequence 10, Appl	Sequence /, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 7, Appli Sequence 132, Appli Sequence 133, Appli	sequence 135, App Sequence 134, App Sequence 137, App Sequence 115, App Sequence 115, App Sequence 16, Appl Sequence 6, Appli Sequence 10, Appli Sequence 10, Appli Sequence 10, Appli
110 10 US-09-804-409A-9 110 12 US-09-969-748C-6 110 15 US-10-038-686-1 110 15 US-10-38-6813-2 117 9 US-09-280-030-63 130 9 US-09-280-030-62	124 9 0S-09-736-611-12 1124 9 0S-09-46-359-12 1124 0 US-09-844-711-12 125 9 US-09-736-611-10 125 9 US-09-740-359-10 125 10 US-09-864-711-10 147 9 US-09-736-611-8	9 US-09-740-399-7 9 US-09-740-399-8 9 US-09-40-389-8 10 US-09-894-711- 10 US-09-894-711- 9 US-09-804-711- 9 US-09-805-808-811- 9 US-09-805-808-811- 9 US-09-805-808-811-	46 9 08 09-25-656 18- 46 9 08-09-205-68-14- 46 9 08-09-205-688-136- 46 9 08-09-205-688-135- 9 08-09-205-688-115- 9 08-09-815-229-14- 32 10 08-09-847-563-6- 56 9 08-09-815-229-10- 166 9 08-09-815-229-10-
90.08		20000887 C	250 145 194 194 193 193 193 173 173 173 173 173 173 173 173 173 17
16 17 18 19 20 21		D G G G G G G G G G G G G G G G G G G G	> m m क्वक्कक - m m क्वक्कक - m m क्ष

ALIGNMENTS

```
Sequence 5, Application US/10054873
Publication No. US20020164712A1
GENERAL INFORMATION:
APPLICANT: Gan, Zhong Ru
TILE OF INVENTION: Chimeric Protein Costaining an
Intramolecular Chaperone Like Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: 1BM PC compatible OPERATING SYSTEM: PC-DOS/MS-150S SOFTWARE: Patentin Release #:.0, Version #1.30
                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
ADDRESSE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Bighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,946
REFERENCE/DOCKET NUMBER: 020167-000130US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: WO PCT/CN98/00052
FILING DATE: 11-MAR-1998
APPLICATION NUMBER: US 09/423,100
FILING DATE: 11-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION DATA:
RAPPLICATION NUMBER: US/10/054,873
FILING DATE: 22-Jan-2002
CLASSIFICATION: <UNKnown>
                                                                                                                                                                                                                                                                                                                                                 COUNTRY: USA
21P: 94:11-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                              CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO
US-10-054-873-5
```

```
LENGTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .;
O
                                                                                                                                                                                                                                                                                                                      ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Saps
                                                                                                                                                                                                                                                                                                                      SdpS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25
                                                                                                                                                                                                                                                                                                                                                                                        1 EVNOHIGGSHLVEALYLVGGERSEFYTPKTRGTVEQCGTSTUSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                      ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Form September and Comments of September 2007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 FVNUHLCGSHLVBALYLVCGERGFFYTPKTRGIVEGOTTSICSLYQLENYCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 107;
                                                                                                                                                                                                                                Length 52;
                                                                                                                                                                                                                                                                                                                  Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SECUENCES: 7
CHEESE WIESET FORESS:
TOWNSOND AND TOWNSOND AND CYCW LLP
STREET: Two Embarcadero Centor, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: 020167 0001300S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 294; D6-14;
100.0%; Pred. No. 5 'e-29;
                                                                                                                                                                                                                                100.0%; Score 294; DB 14; 100.0%; Pred. No. 2.5e-29;
                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: WO PCT/CN98/00052
                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US/10/054,873
FILING DATE: 22-Jan-2002
CLASSIFICATION: <UNKNOWN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 31-MAR-1998
APPLICATION NUMBER: US 09/423.100
FILING DATE: 11-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-10S/MS (40S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MALECULE TYPE: providing SEQUID No. 6: 08-10-054-873-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLEMENT CALL ZBORN FOR THE DESIGN OF THE PERSON OF THE P
        TOPOLOGY: linear

MOLECULE TYPE: protein

SEQUENCE DESCRIPTION: SEQ ID NO:
US-10-054:873 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY: USA
71P: 941h.3834
COMPUTER READMBLE FORM:
MEGICM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 6, Application US/10054873 Publication No. US20020164712A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 107 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS: <Unknown>
TOPOLOGY: Linear
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTURNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO: 6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: amino acid
                                                                                                                                                                                                                                Query Match
Best Local Similarity 100.6
Matches 52, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
bes 52: Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-054 873-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-054-873-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
```

Sequence 7, Application US/10054873 Publication No. US20020164712A1 GENERAL INFORMATION:

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99 FVNQHLGGSHLVEALYLVGGERGFFYTPKTKGIVEQCCTSTGSLYQLENYCN 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
APPLICANT: Gai, Zhong Ru
TITLE OF INVENTION: Chimeric Protein Containing an
Intramolecular Chaperone-Like Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 294; DB 14; Length 150; 100.0%; Pred. No. 7.9e-29; Ive 0; Mismatches 0; Indels 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 278.5; DB 11; Length 51;
Pred. No. 2e-27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Dubaquie, Yves
APPLICANT: Filvaront, Ellon
APPLICANT: Lowman, Henry B.
TITLE OF INVENTION: METHOD FOR TYEATING CARTILAGE DISORDERS
                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Fatentin Release #1 0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                   CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HEGISTRATION NUMBER: 16,946
REFERENCE/DOCKET NUM - (R.: 020167-000130US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLITATION NUMBER: WO PET/ON PLOUGE. PELLING DATE: EL-MAR 1958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/858,935B CURRENT APPLICATION NUMBER: US/09/858,935B CURRENT FILING DATE: 2002-07-02 PRIOR PILING DATE: 2006-11 15 FRIOR FILING DATE: 2006-116 NUMBER: US 60/204,490 PRIOR FILING DATE: 2000-03-16 NUMBER: OS 60/204,490 PRIOR FILING DATE: 2000-03-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 097424, LOS PILLING DATE: 11-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/10/054.87
FILING DATE: 22-Jan-2002
TLASSIFICATION: «UNKHOWE)
                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: profein
SEQUENCE DESCRIPTION: SEQ ID NO: 7:
US-16-054-873-7
                                                                                                                                                                                                                              COUNTRY: USA
Z 2 DE: 94111 - 8834
F: MEDTER REALIMETE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : Sequence 5, Application US/098589358
; Publication No. US20030069177A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 150 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Mycroft, Frank J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 11-DEC: 20
Altorney/Agent information:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   94.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DAFA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ouery Match
Best Local Similarity 100.0
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: amino and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SECTION NO.
                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-858-6358-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-858-935B-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
```

.. 0

```
APPLICANT: Schaffer, Michelle
APPLICANT: Ultsch, Mark
APPLICANT: Vajdos, Felix
TILE OF INVENTION: CRYSTALLIZATION OF IGF-1
FILE REFERENCE: P1869R1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Lambiris, Elias J. REGISTRATION NUMBER: 33,728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 21-May-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION: TELEPHONE: 212-867-0123
                                                                                                                                                     Sequence 19, Application US/09861687 Publication No. US20020193292A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   // Sequence 3, Application US/10066009A
// Publication No. US20020165155Al
// GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGIH: 138 amino acids
                                                                                                                                                                                                                                                                                    Brandt, Jakob
Kurtzhals, Peter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                 APPLICANT: Markussen, Jan
Jonassen, Ib
Havelund, Svend
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: 212-878-9655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCRRENT APPLICATION DAIA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO: 19: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                             PRESENTENCE ALTERESS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ouery Match
Best Local Similarity 94.3%
Watches 50: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-066-009A 3
                                                                                                                                   US-09-861-687-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 8
                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
        ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Kjeldsen, Thomas Borglum
APPLICANT: Ludvigsen, Svend
TITLE OF INVENTION: Method for making instits precursors and
TITLE OF INVENTION: Insurin precursor an roques having improved fermentation
TITLE OF INVENTION: yield in yeast
FILE REFERENCE: 6148-400-46S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..
    1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                          1 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                              1 FVNQHLGGSHLVEAIXLVGGERGFFYTPKT-GIVEQCCTSICSIXQLENYCN 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        93.7%; Score 275.5; DB 10; Length 124; 94.3%; Pred. No. 1.2e-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94.7%; Score 278; ; DB 14;
98.1%; Pred. No. 2e-27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Mismatches
  Mismatches
                                                                                                                                                                                                                                              APPLICANT: Dubaqqie, Yves
APPLICANT: Dubaqqie, Yves
TITLE OF INVENTION: PROTEIN VARIANIS
FILE REFERENCE: P1712R1-1
CURRENT APPLICATION NUMBER: US/10/028,410
CURRENT FILIN: DATE: 2001 12-15
PRIOR APPLICATION NUMBER: US/33/477.54
PRIOR FILING DATE: 2002 01 u5
NUMBER OF SED ID NOS: 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APELICATION NUMBER: 05/09/894,71;
CURRENT FILING DATE: 2001-06-28
PRIOR APPLICATION NUMBER: PA 2600 0044 1
PRIOR PILING DATE: 2000-03-17
PRIOR PILING DATE: 2000-03-17
PRIOR PILING DATE: 1999-12-29
PRIOR PILING DATE: 2000-66-13
PRIOR PILING DATE: 2000-66-13
PRIOR PILING DATE: 2000-02-10
PRIOR PILING DATE: 2000-02-10
PRIOR PILING DATE: 2000-02-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 18, Application US/09894711
Patent No. US20020137144A1
                                                                                                                                                                  US-10-028-410-3
; Sequence 3, Application US/10028410
; Publication No. US20020160955Al
; GENERAL INFORMATION:
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match
Best Local Similarity 98.11
Matches 51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  50; Conservative
51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEU ID NOS: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
Matches 50; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-854-711-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-894-711 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-028-410-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
  Matches
                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ď
```

```
ADDRESSEE: no. US20020193294ALO No. US20020193292Aldisk of No. US2002
STREET: 405 Loxington Avenue, 64th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 FVNQHLCGSHLVEALYLVCGERGFFYTPK-TRGIVEOCCTSICSLYOLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 FVNØHLCGSHLVEALYLVCGERGFFYTPK-TRGIVEQCCTSICSLYQLENYCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93.78; Score 275.5; DB 10; Length 138;
94.38; Pred. No. 1.46-26;
Live 1; Mismatches 1; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER FRADAL E PORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS: 2NS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 4341.204-US
                                                                                                                                                                                                                                                                                                                                                                                                                                                 TILLE OF INVENTION: INSECTA DERIVATIVES MIRRER OF SEQUENCES: 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE: New York COUNTRY: United States of America ZIP: 10174 6401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/09/861,687
                                                                                                                                                                                                                                                                                                                                                                                            Hansen, Hertz Per
Kaarsbolm, Niels Christian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLEGULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 19:
03:09-861-687-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 08/932,082
FILING DATE: 16-DEC-1997
```

```
RESULT 12
US-10-054-873-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-028-416-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-028-410-2
                                                                                                                      SEO ID NO 4
                                                                                                                                                                                         TYPE: PRT
ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEC ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT
                                                                                                                                                      I.ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: KURANO, Yoshihiro
APPLICANT: NAKATSUBG, Kaoru
APPLICANT: NISHTZONO, Isao
TITLE OF INVENTION: Immunoassay For Measuring Human C-Peptide and Kit Therefor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 FVNQHIGGSHLVEALYLVGGERGFFYTPKTRRRAEDLQVGÇVFLGGGPGAGSLQPFALEG 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 FVNQHLCGSHLVEALYEVCGERGFFYTPKTRGTVEGTTSTCSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   THE PROPERTY OF THE FAMILY OF THE STATE OF THE STATES OF T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92.9%; Score 273; DH 14; Length 50; 96.2%; Pred. No. 9.5e-27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 267; DB 10; Length 85;
Pred. No. 9.4e+26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Dubaquie, Yves
APPLICANT: Elivaroff, Ellen
APPLICANT: Lowman, Henry B.
TITLE OF INVENTION: METHOD FOR TREATING CARTILAGE DISORDERS
FILE REFERENCE: P1794R1
CURRENT APPLICATION UNDER: US/09/858,935B
CURRENT APPLICATION UNDER: US/09/858,935B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 FVNOHLGGSHLVEALYLVGGERGFFYTPK; -- --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
CURRENT APPLICATION NUMBER: US/10/066,009A CURRENT FILING DATE: 2002-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILE REFERENCE: 0760-0291P
CURRENT APPLICATION NUMBER: US/09/878, 880
CURRENT FILING DATE: 2001-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: JP 2000-174691
PRIOR FILLING DATE: 2000-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31 ---- RGIVEQCCTSICSLYQLENYON 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 STOKRGIVEOCCTST/ST/YOTENYON RE
                                                       PRIOR APPLICATION NUMBER: US 60/287,072 PRIOR FILING DATE: 2001-04-27 PRIOR APPLICATION NUMBER: US 60/267,977 PRIOR FILING DATE: 2001-02-09 NUMBER OF SEQ ID NOS: 5 SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT FILING DATE: 2002-07-02
PRIOR APPLICATION NUMBER: US 60/248,985
PRIOR FILING DATE: 2000-11-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 4. Application US/09858935B Publication No. US20030069177A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : Sequence 1, Application US/09878380
: Patent No. US20020160435A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90.8%;
60.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Patentin version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Fujirebio Inc.
APPLICANT: KITAJIMA, Sachiko
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity 96.2
ses 50; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 2
SOFTWARE: Patentin versi
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRI
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 52; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   : GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4 858 945B 4
                                                                                                                                                                                                                                                                                                                                                                                                  US-10-066-009A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-878-380-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-878-380-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86
                                                                                                                                                                                                                                                                                            LENGTH: 50
                                                                                                                                                                                                                                                                                                                                   TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       đ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qc
```

```
...... 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               34; Gaps
                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                         34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: Chimeric Protein Containing an
Intramolecular Chaperone-Like Sequence
                                                                                                                                                                                                       Query Match 90.8%; Score 267; DB 11; Length 86; Best Local Similarity 60.5%; Pred. No. 9.4e-26; Matches 52; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 267: DB 14; Length 86;
Pred. No. 9.4e 2b;
C; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Ownsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 FVNQHLCGSHLVEALYLVCGERGFFYTPKT----
                                                                                                                                                                                                                                                                                                   1 FVNQHLCGSHLVEALYLVCGERGFFYTPKT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: LOWMON, Henry ITILE, OF INVENTION: PROTEIN VARIANTS FILE REFERENCE: P1712P1-1 CURRENT APPLICATION NUMBER: US/10/028,410 CURRENT FILING DATE: 2001-12-19 PRIOR PRICATION NUMBER: US/09/477,924 PRIOR FILING DATE: 2000-01-05 NUMBER OF SEQ ID NOS: 6
                                                                                                                                                                                                                                                                                                                                                                                           31 ----RGIVEQUOTISICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                    C1 SEQKROLVEGATELOSLYGGENYON BA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31 ----ROIVEQUOTSICSLYQLENYON 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 SLOKRGIVEQCCTSICSLYQLENYCN 86
PRIOR APPLICATION NUMBER: US 60/204,490 PRIOR FILING DATE: 2000-05-16 NUMBER OF SEQ 1D NOS: 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 4, Application US/10054873 Publication No. US20020164712Al GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 2, Application US/10028410 Publication No. US20020160955A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90.8%;
60.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Gan, Zhong Ru
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 60.5%
The second Similarity 50.5%
The second Similarity 52.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY: USA
ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Dubaquie, Yves
APPLICANT: Lowman, Henry
                                                                                                                                  ; ORGANISM: Homo sapiens
US-09-858-935B-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Homo sapiens
```

us-09-423-100-5.rapb

```
. - - - - 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11 FVNOHLGGSHLVFALYLYGGERGFFYTPKTRREAEDLQVGQVELGGGRGAGSLQPLALEG 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Saps
                                                                                                                                                                                                                                                                                                                                                                                                                  34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90.8%; Score 267; DB 9; Length 110;
60.5%; Pred. No. 1.26.25;
                                                                                                                                                                                                                                                                                                                                                                        90,8%; Score 267; CB 1C; Length 95;
60,5%; Pred, No. 1,1e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Ruykun, Gary
APPLICANT: Ogg, Scott
TITLE OF INVENTION: THERAPECTIC AND DIAGNOSTIC TOOLS FOR
TITLE OF INVENTION: IMPAIRED GLUCOSE TOLERANCE CONDITIONS
FILE REFERENCE: 00786/351004
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 FVNOHLCGSHLVEALYLVCGERGFFYTPKT - - -
                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismateles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 FVNOHLCGSHLVEALYLVCGERGFFYTPKT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EARLIER APPLICATION NUMBER: US98/10080
EARLIER FILING DATE: 1998-05-15
NUMBER OF SEQ 1D NGS: 328
SOFTWARE: FASISEQ for Windows Version 4.0
SEC 1D NO 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/09/205,658
CURRENT FILING DATE: 1998-12-03
EARLIER APPLICATION NUMBER: 08/857,076
EARLIER FILING DATE: 1997-05-15
EARLIER APPLICATION NUMBER: 08/888,534
EARLIER FILING DATE: 1997-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85 SLQKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                             LOCATION: 1.96
SEQUENCE DESCRIPTION: SEQ. ID NO: 4:
US 947-563-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31 ----RGIVEQCCTSICSLYQLENYON 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31 ----RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         71 SLOKRGIVEOCCTSTCSLYOLENYCN 96
                                                                                                                                                                                                                                 ORGANISM: Escherichia coli
        TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 408-400
ELEFEAT: (202) 408-4400
INFORMATION FOR SEC ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 125, Application US/09205658
Patent No. US20010029617A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : Sequence 3, Application US/09815229
                                                                                                           LENGIH: 96 amino acids
                                                                                                                              TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                           Protein
                                                                                                                                                                  TOPOLOGY: linear MOLECULE TYPE: protein ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                 Guory Match
Best Lord Similarity 60.00
The St. Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 60.5
Matches 52, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                         NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-205-658-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-205 658-125
                                                                                                                                                                                                                                                    FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 15
US-09-815-229-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query March
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: Finnegan, Henderson, Farrabow, Garrett &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              · 14; Length 86;
·-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION UNBER: 09/134.836
FILING DATE: <UNKnown>
ATTORNEY AGENT INFORMATION:
NAME: Lealie McDonell
REGISTRATION UNBER: 34.872
REFERENCE/DOCKET NUMBER: 02481.1600-00000
                                                                                                                                                                                                                                                            NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,946
REFERENCE/DOCKET NUMBER: 020167-300130GS
INFORMATION FOR SEQ ID NO: 4:
SEGUENTE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .;
0
                                                                                                                                      PRICK APPLICATION DATA:
APPLICATION NUMBER: WO PCT/CN98/C0052
FILING DATE: 31-MAR-1998
APPLICATION NUMBER: US 09/423,100
FILING DATE: 11-DEC-2060
ATTORNEY/AGENT INFORMATION:
                                                      CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/054,873
FILING DATE: 22-Jan-2002
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: 1BM PC COMPATIBLE UPERATING SYSTEMARE, PC-DOS/MS NOT SOFTWARE, Patentin Release #1.0 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/09/947,563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 267;
Pred. No. :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 FVNOHLCGSHLVEALYLVCGERGFFYTPKT-
                                                                                                                                                                                                                                                                                                                                                                                                        TOPPLENT: Inear : CORRESPONDED : CORRESPONDED : MOLECULE TYPE: protein SEQUENCE DESCRIPTION: SEQ ID NO: 4: US-10-054-873-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31 - -- RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 SLUKRGIVEQCCTSICSLYQLENYCN 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Rubroder, Franz-Josef
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 1300 I Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 07-Sep-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: USA
ZIP: 26005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 4, Application US/09947563 Patent No. US20020156234A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                     STRANCEDNESS: <URKBOWB>
                                                                                                                                                                                                                                                                                                                                                             GENOTH: 86 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 60.5%;
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dunner
                                                                                                                                                                                                                                                                                                                                                                                     IYFE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Washington
STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-947-563-4
```

g

```
Patent No. US20020058614A1
GENERAL INFORMATION:
APPLICANT: FILVATOFF, Ellen H.
APPLICANT: FLAVATOFF, Ellen H.
APPLICANT: FLAVATOFF, Ellen H.
TITLE OF INVENTION: USE OF INSULIN FOR THE TREATMENT OF CARTILAGENOUS DISORDERS CHEENTERENT PRICKATION NUMBER: US/09/815,229
CURRENT FILING DATE: 2001-03-22
PRIOR APPLICATION NUMBER: US 60/192,103
PRIOR APPLICATION NUMBER: US 60/192,103
PRIOR FILING DATE: 2000-03-24
NUMBER OF SEQ ID M.S: 17
SEQ ID NO 3
LENGTH: 110
TYPE: PRT
ORGANISH: HOMO SapienS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-815:229-3
```

Query March 90.8k; Shore 2k2, ERR 9; Longth 110; Best Loral Similarity 60.5k; Prod. No. 1.40 25; Matches 52; Conservative k; Misselfus 6; Indels

y. =

t: mdets sa:

31 --- RGIVEQCCTSICSLYOLENYCH 52 iiiiiiiiiiiiiiiiiiiiii 111 85 SLQKRGIVEQCCTSICSLYOLENYCH 1:0

Search completed: September 15, 2003, 12:23:35 Job time : 22.8065 secs

qq

g ć

ŝ

OM protein - protein search, using sw model

September 15, 2003, 11:56:45; Search time 8.57348 Seconds (without alignments) 583.284 Million cell updates/see Run on:

US-09-423-100-5 294

1 FVNOHLGGSHLWEALYLWCG.....IVEOCCTSICSLYGLENYCN 52 Title: Perfect score: Sequence:

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

Total number of hits satisfying closen parameters:

283308 segs, 96168682 residies

Searched:

Minimum DB seq rength: 0 Maximum DB seq rength: 2000000000

Post-proressing: Minimum Match 0% Maximum Match 106% Listing first 45 summaries

PIR_76:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:* Database :

Pred. No. is the number of results predicted by chance to have a store greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

0 N	00000		10000	138	2	
-12	11000	March	Material Dengen DB			tion
~	273.5	93.0	5.1	: -	JEMNI	da mados - difesori
	573.5	93.0	51	-	INWHE	
Α,	273.5	93.0	51	-	INEL	
4	77 4	92.8	96	~	PC7082	- Te
ď	271.5	92.3	51	-	INHY	
عد	268.5	91.3	51	-	: NMSSP	
,	267.5	91.0	51	~	A59151	pr
æ	267	8.06	110	_	IPHU	
ţ,	267	8.05	110	~	B42179	
<u> </u>	267	8.05	110	7	A42179	insulin precursor
Ξ	26.7	90.8	110	~	JQ0178	insulin precursor
17	263.5	9.68	5.1	_	I NWH1S	
~	263.5	89.6	51	-	INCT	
7.	5 8 97	9.68	51	-	INCMA	
٠,	263	89.5	84	-	IPPG	insulin precursor
1.6	5€ 4	89.5	110	-	INKE	insulin precursor
13	5.247	8.9.3	51	-	INCT	insulin cat
<u> </u>	262	89.1	110	-	IPDG	č
13	5.197	6.88	51	-	INMKSO	insulin - common s
5 C	260	88.4	110	7	148166	insulin precursor
	258.5	87.9	105	-	IPBO	insulin precursor
2.7	256.5	87.2	51	~	JQ0362	insulin North Am
23	252.5	85.9	77	-	INSH	insulin precursor
24	252	85.7	98	-	IPHO	insulin precursor
25	251.5	85.5	51	~	INCB	insulin - Chinchil
56	251	85.4	108	~	A39883	pr
5.1	250	85.0	108	-	I NMS1	insulin 1 precurso
58	249	84.7	110	~	IPRT1	insulin 1 precurso
58	248.5	84.5	51	-	INGS	insulin - goose

		insulin II - North											insulin precursor	insulin - American	insulin - a'ligato
IPRT2	INMS2	S44469	S44470	INPO	INTK	INOS	A61129	A50414	151223	561361	863590	IPCH	IPDK	INAO	INGXA
7		7	7	-	-	_	-	7	7	7	~		_	_	-
110	110	52	25	5.1	51	51	51	51	103	25	51	107	8	51	52
84.4	84.4	83.7	83.7	83.2	83.2	83.2	83.2	83.2	81.1	61.0	80.1	79.8	79.4	78.7	78.6
248	248	246	246	244.5	244.5	244.5	244.5	244.5	238.5	238	235.5	214.5	234.5	231.5	231

ALIGNMENTS

INVERP	
Crspectes Crspectes Crbater 3	insolin - spera whale Caspecias: Physical caronn (spera whale) Claste: 31-Mar-1992 Tesconne revision 31-Mar-1992 #fext change 16-Jul-1999
C.Accessi R.Ishihar	C.Accession: A93142: A6082 R:Ishihara, Y.: Saito, T.: Ito, ' : Fulino, M.
Nature 18 A;Title:	Nature 181, 1468-1469, 1958 A:Title: Structure of sperm- and sei whale insulius and their breakdown by whale pe
A:Referen	A:Reference number: A93142 A:Accession: A93142
A: Molecul	A:Wolecule type: protein A:Residues: 1-30:31-51 <15H>
R. Harris,	R:Harris, J.I.; Sanger, F.; Naughton, M.A. Arch Biochem Ninglas 6: 427-638 1656
A: Title:	A. Title: Species differences in insulin.
A: Accessi	A: Accession: A90082
A:Molecul A:Residue	A:Molecule type: protein A:Residues: 1-30:31-51 «HAR»
C: Superfa	C.Superiamily: insulin
F: 1 - 30/DC	main: insulin chain B *status experimental <hch></hch>
F; 1 - 50; 51 F; 31 - 51/C F; 7 - 37, 19	r. 1-50.31 - J.Troduc Institut - Scarus experimental smark F:31-51/komain: insulin chain A #status experimental -ACH> E:7-37,19-50,36-41/bisullide bonds: #status predicted
Ouery Match	(atch 93.0%; Score 273.5; DR 1; (ength 51;
Best Loca Matches	Similarity 96.2%; Pred. No. 1.5e.24; 0; Conservative 0; Mismatches 1;
ςλ	1 FVNOHLGGSHLVEALXINGGENGFRYTPKTRGIVEGCCTSICSLXQLENYCN 52
qa	1 FUNDHECGSHEVEALYLVGGERGFFYTPRA-GIVEGCCTSICSHYÖLENYCN 51

RESULT 2 INWHF

Insulin - Linback whale (truitative sequence)
C:Species: Balaenopitera physalus (tinback whale, common rorqual)
C:Species: Balaenopitera physalus (tinback whale, common rorqual)
C:Dates: Bi-Mar:1992 *sequence_revision 31-Mar:1992 *text_change l6-Jul-1999
C:Accession: A91918
R:Hama, H.: Titani, K.: Sakaki, S.: Narita, K.
J. Biochem: 56, 285 293, 1964
A:Title: The amino acid sequence in fin-whale insulin.
A:Reference number: A91918
A:Accession: A91918
A:Molecule type: protein
A:Molecule type: protein
A:Molecule type: protein
C:Superfamily: insulin
C:Superfamily: insulin chain B *status experimental <BCH>

```
91.38;
                                                                                                                                                                                                                                                                                                                                                                                                                   Owery March
Best Local Similarity 94.29
Marches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C.Accession: A01591
R.Buenzli, H.F.: Humbel, R.E.
                                                                                                                                                                                                                            A:Molecule type: projein
A:Residucs: 1-30,31.5, <NEDS
C:Superfamily: insulin
C:Keywords: hormone; pancreas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A: Reference number: A59151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match
Best Local Similarity
Matches 48; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Contents: composition
A;Accession: A01591
                                                                                                C;Accession: A91456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: B59151
                                   insulin - hamster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INMSSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A.Accession: A01584
A.Molecule type: protein
A.Molecule type: protein
A.Molecule type: protein
A.Molecule type: 130,31-51 <SMI>
A.Note: the species of elephant is not uiven, but it is most probably the Indian elephan
C.Superfamily: insulin
C.Superfamily: insulin
C.Superfamily: insulin chain H *status experimental <BCH>
F.1-30,71-51/Product: insulin astatus experimental <AMI>
F.30,71-51/Product: insulin astatus experimental <AMI>
F.31-51/Domain: insulin chain A *status experimental <ACH>
F.31-51/Domain: insulin chain A *status experimental <ACH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              epidemal growth factor/single chain insuits fusion protein - Bacillus brevis (fragment) C:Species: Bacillus brevis (C)Date: 18-Aug-2000 *sequence_revision 18 Aug-2000 *text_change 31:Mar-2003 C:Accession : PC7082; PC7083 C:Accession : PC7082; MulD:20335834; PMID:1087487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ÷
                                                                                                                                                                                                                                                                                                                                                      C:Species: Elephantidae qen. sp. (elephant)
Cobber: 24 April954 "sequence", revision (1. Seq. 1988 "text_clange 15 Dul-1999
C:Accession: Aul584
R:Smith, L.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 FUNDHIGGSHLVEALYLVCGERGFFYTFKTRGTVEQCCTSTGSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 FVNQHLGGSHLVEALYLVGGERGFFYTPKTRGIVEQCCTSTCSLYGLENYCN 5.2
                                                                                                                                                                                                       | FUNDALICOSHLVEALYLVCGERGEFYTPRA GLVEQCCTSICSLYQLENYCN 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --
                                                                                                                                     <u>:</u>
                                                                                           Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Am. J. Med. 40, 662-665, 1966.
A:Title: Species variation in the amino acid sequence of insulin.
A:Reference number: A90029; MUID:66160119; PMID:5949593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 96
                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                            <ACH>
F.1-30, 31-51/Product: insulin #status experimental <MAT>
F.31-51/Domain: insulin chain A #status experimental <ACI
F.7-37,19-50,36-41/Disulfide bonds: #status predicted
                                                                                      : DB 1;
:-e 24;
:-s 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 273; DB 2; L
Pred. No. 2.96-24;
); Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  93.0%; Score 273.5; DB 1 94.2%; Pred. No. 1.5e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1: Mismatches
                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                      93.0%; Score 273.5; 96.2%; Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92.9%;
96.2%;
                                                                                      Ouery Match
Best Local Similarity 96.28
Matches 50; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   49: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 96.2
Matches 50: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A.Molecule type: DNA
A.Residues: 1 96 <KGH>
A.Accession: FG7083
A.Molecule type: protein
A.Residues: 19-28 <KG2>
Genetics:
A.Gene: ed. sci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
                                                                                                                                                                                                                                                                                                                                 insulin · elephant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 4
                                                                                                                                                                             ô
                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ô
```

RESULT 5

```
insulin procursor - jack boan (fragments)
NiAlternate names: hypogytycemic agent; plant insulin
CiSpecies: Canavalia ensiformis (jack bean)
CiSpace: 07-Dec-1999 #sequence_revision 07-Dec-1999 #text_change 10-Dec-1999
CiAccession: B59151: A59151
Rioliveira. A.E.A.; Machado, O.L.; Gomes, V.M.; Kavier-Neto, J.; Pereira, A.C.P.;
Procein Pept. Lett. 6, 15-21, 199
A:Title: Jack bean seed coat cont ins a protein with complete sequence homology to I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hoppe-Seyler's 2, Physiol. Chem. 353, 444-456, 1972
A:Title: Isolation and partial structural analysis of insulin from mouse (Mus muscu
A:Reference number: A01591; MUID:72189454; PMID:5628210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ..
~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C:Species: Acomys califinus (Egyptian spiny mouse)
C:Date: 13-Jul-1981 #sequence_revision 13-Jul-1981 #text_change 31-Mar-2000
                                     16-Jul 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                     Arithe: Structure of hamster insulin: comparison with a tumor insulin
A:Reference number: A91456
A:Accession: A91456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 FVNOHLCGSHLVEAL/YLVCLERGFFYTPKTRGIVEU/CTSICSL/YCLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DR 1; Length 51;
C.Species: Cricetinae qen. Sp. (hamster)
C.Date: 31.Mar.1992 #sequence_rovision 31.Mar-1992 #text_change
                                                                                             R;Neelon, F.A.; Delcher, H.K.; Steinman, H.; Lebovitz, H.E. Fed. Proc. 32, 300, 1973
                                                                                                                                                                                                                                                                                                                                                                            Cikeywords: hormone: pancreas
E1-80/Domain: insulin chain B *status experimental <BCH>
E1-30,31 bl/Product: insulin *status experimental <MAT>
E31-51/Domain: insulin chain A *status experimental <ACH>
E77-77,19 50,36-41/Disultine bonds: #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A Wolecule type: protein
A Residues: 1-30:31-51 < BUE>
C. Superfamily: insulin
C. Superfamily: insulin chain B **status predicted < BCH>
F:1-30/Domain: insulin chain B **status predicted < AGCH>
F:1-30,31 **sify for the status predicted < AGCH>
F:1-30,31 **sify for the status predicted < AGCH>
F:1-30,31 **sify for the status predicted < AGCH>
F:1-37,19-50,36-41/Disultide bonds: **status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 268.5; DB 1;
Prod. No. 5.5e-24;
i; Mismatches 0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92.4%; Score 273.5; DH 1; 94.2%; Fred, No. 2.5e 24; Use 2; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  insulin - Egyptian spiny mouse (tentative sequence)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: protein A; Residues: 1-30 < MACB>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Accession: A59151
```

```
Resideber, P., Kamber, B.; Hartman, A.; Siniker, B.; Rittel, W. Holy, Chim. Acta 57, 2617-2621, 1974
A:Fileber, P.; Kamber, B.; Hartman, A.; Joehl, A.; Riniker, B.; Rittel, W. A; Title: Totalsynthese you thamaninsulin unter aczielter Bildung der Disulfidbindung. A:File: Totalsynthese you thamaninsulin unter aczielter Bildung der Disulfidbindung. A:Filerence unmeer: A91636; MUID: 75077277; PMID: 4443293
A:Fontents: annotation: Synthesis PA:File Synthetic hormone was in A:Note: article in derman with English abstract
R:Naithan; V.K.
Hopper-Seyler's Z. Physiol. Chem. 354, 659-672, 1973
A:File: The synthesis of C-peptide of human proinsulin.
A:Reference number: A91658; MUID: 75040007; PMID: 4803564
A:Contents: annotation: Synthesis of residues 57-67
Ghem. Ber: 106, 2347-2352, 1973
A:Fille: Synthesis of the complete sequence of human proinsulin C-peptide and its [.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            insulin precursor - green monkey
C;Species: Cercopithecus acthiops (green monkey, grivet)
C;Dacession : 04-Mar-1993 *sequence_revision 18-Nov-1994 *text_change 16-Jul-1999
C;Accession : 842179; A05212; S16494; S22056
R;Sefio, S.; Bell, G.I.: Li, M.H.
Mol. Biol. Evol. 9, 193-203, 1992
A):Title: Sequences of primate insulin genes support the hypothesis of a slower rate
A):Reference number: A42179; MUID:92219953; PMID:1560757
                                                                                                                                    A;Molecule type: protein
A;Residues: 57-87 «KOA»
K:Lucassen, A.M.: Julier, C.; Beressi, J.P.; Boitard, C.; Froguel, P.; Lathrop, M.;
Nature Genet. 4, 305-310, 1993
                                                                                                                                                                                                                                                                        A:Title: Susceptibility to insulin dependent diabetes mellitus maps to a 4.1 kb segn
A:Reference number: 158114: MUID:94364428; PMID:8458440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Biochem, J. 310, 869-874, 1995
A:Title: Sequence requirements for proinsulin processing at the B-chain/C-peptide j
A:Reference number: $58661: MUID:960:3185; PMID:7575420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A:Contents: annotation; site-directed mutagenesis study of proteolytic processing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25 FVNQHLCGSHLVEA:XLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALFG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Residues: 159,63-110 <RES>
A:Cross-references: GB:L15440; NID:q307071: PIUN:AAA59179.1; PID:g307072
                      A;Title: Amino acid sequence of the C-peptide of human proinsulin.
A;Reference number: A91186; MUID:71257722; PMID:5560404
A;Accession: A91186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C.Superfamily: insulin
C.Superfamily: insulin
C.Reywords: hormone: pancreas
F.1-24/Domain: signal sequence *status predicted -SIG>
F.25-54/Domain: insulin chain B *status experimental -BCH>
F.25-54/00main: insulin *status experimental *ART>
F.57-87/Domain: connecting C peptide *status experimental <CPE>
F.90-110/Domain: insulin chain A *status experimental <ACH>
F.31-96.43:109,95-100/Disulfide bonds: *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      90.8%; Score 267; DB 1;
60.5%; Pred. No. 1.6e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Reference number: A50914
K.Contents: annotetiou; Synthesis of residues 57 87
R;Kaufmann, J.E.; Irminger, J.C.; Haiban, P.A.
Biochem, J. 310, 865-874, 1995
                                                                                                                                                                                                                                                                                                                                                                                     A:Status: preliminary: translated from GB/EMBL/DDBJ
A:Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-reterences: GDB:119349; OMIM:176730
A;Map position: 11p15.5-11p15.5
A;Introns: 63/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 60.5
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                   158114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match
                                                                                                                                                                                                                                                                                                                                                   A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ें
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A:Title: Studies on human proinsulin. Isolation and amino acid sequence of the human pad
A:Reference number: A92075; MUID:71116410; PMID:5101771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N'Alternale names: proprintsulin
C.Species: Homo sapiens (man)
C.Date: 2-3-oct-1981 #sequence_revision 23-oct-1981 #text_change 08-Dec-2000
C.Accession: A93222; A94253; A93216; A94251; A93144; A94075; A91186; 158114; A01579;
R.Bell, G.L., Picter, R.L.; Rutter, W.J.; Lordell, B.; Tischer, E.; Goodman, H.M.
Nature 284, 26-32, 1980
A.Title: Sequence of the human insulin gene.
                                                                                                                                                                                                                                                                                                                                                                                                                   .;
                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Affile: Nucleotide sequence of a cDNA clone encoding human preproinsulin
A:Reference number: A93216; MUID:80054779; PMID:503234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A)Cross references: GB.J00265; NID:q186429; PIDN:AAA59172.1; PID:q386828 R:Ullrich, A.; Dull, T.J.; Gray, A.; Brosius, J.; Sures, I. Science 209, 612-615, 1980 A:Tillo: Genetic variation in the human insulin gene. A:Reference number: A94253; MUID:80236313; PMID:6248962 A:Accession: A94253.
A,Molecule type: protein
A,Residues: 31-51 cMACA>
A,Residues: 31-51 cMACA>
C;Comment: The two chains are probably produced from the same precursor.
C;Superfamily: insulin
F;1-30,31-51/Product: insulin *status experimental cMAT>
F;1-30,71-50,70main: chain B *status experimental CMA>
F;1-31/LOmain: chain A *status experimental CMA>
F;7-37,19-50,36-41/Pisulfide bonds: *status p:edicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A:Cross:references: GB:J00265; NID:9186429; PIDN:AAA59172.1; PID:9386828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A:Cross-references: GB:J00265; N10:q186429; P:DN:AAA59172.1; P:ID:q386828
R:Sures, I.; Goeddel, D.V.; Gray, A.; Ullrich, A.
Science 208, 57-59, 1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A:Residues: 1 110 <SUR>
A:Gross-references: GB:300265: NID:9186429; PIDN:AAA59172.1; PID:9386828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 FVNOHLGGSHLVEALYLVGGERGFFYTPKA-GIVEQCCASVGSLYOLENYCN 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A:Title: Nucleotide sequence of numan preproinsuiin complementary DNA
A:Reference number: A94251; MUID:80147417; PMID:6927840
                                                                                                                                                                                                                                                                                                                                                                                                                   Ĥ
                                                                                                                                                                                                                                                                                                                                            Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R;Bell, G.I.; Swain, W.F.; Pictet, R.; Cordell, B.; Goodman,
Nature 282, 525-527, 1979
                                                                                                                                                                                                                                                                                                                                91.0%; Score 267.5; DB 2;
92.3%; Pred. No. 7.2e-24;
tive 1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R:Oyer, P.E.; Cho, S.; Peterson, J.D.; Steiner, D.F.
J. Biol. Chem. 246, 1375-1386, 1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;Ko, A.; Smyth, D.G.; Markussen, J.; Sundby, F.
Eur. J. Biochem. 20, 190-199, 1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A:Title: Amino-acid sequence of human insulin
A:Reference number: A93144
                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 92.39
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A:Molecule type: protein
A:Residues: 25-54:90-110 <NIC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      insulin precursor [validated]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Smith, L.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R;Nicol, D.S.H.W.; Smith,
Nature 187, 483-485, 1960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: protein A; Residues: 57-87 < OYE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Molecule type: mRNA
A:Residues: I:110 <8EL2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Molerule type: DNA
A;Residues: 1-110 <BEL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-110 <ULL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A: Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A:Accession: A93144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A:Accession: A92075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A:Accession: A93216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: A93222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Accession: A9425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
```

ž

```
Rishihara, Y.; Sailo, T.; Ito, Y.; Fujino, M.
Nature 181, 1468-1469, 1958
A:Title: Structure of sperm- and sei-whale insulins and their breakdown by whale pep.
                                              Circoession: Journa Journa Britte: The nucleotide sequence of cDNA coding for preproinsulin from the primate M A: Metekam, W.: Groneberr, J.: Leineweber, M.: Wengenmayer, F.: Winnacker, E.L. Gene 19, 179-183, 1982
A: Mittle: The nucleotide sequence of cDNA coding for preproinsulin from the primate M A: Reference number: Jg0178; MUD:83086474; PMID:5184262
A: Accession: Jg0178
A: Reference number: Jg0178; MUD:9342121; PIDN:AA36849.1; PID:9342122
A: Residues: 1-110 <WRT>
A: Residues: 1-110 <WRT>
A: Cross-references: GB:J00336; NID:9342121; PIDN:AA36849.1; PID:9342122
C: Superhamily: insulin ** status* predicted <MAT>
F: 124 / Domain: Signal sequence ** status* predicted <MAT>
F: 25-54 / 90-110/Product: insulin ** status* predicted <MAT>
F: 55-54 / Domain: insulin connecting C peptide ** status* predicted <CPT>
F: 55-54 / Domain: insulin connecting C peptide ** status* predicted <ACH>
F: 90-110/Domain: insulin chain A ** status* predicted <ACH>
F: 90-110/Domain: insulin chain B ** status* predicted <ACH>
F: 91-109.95-100/Disuifide bonds: ** status* predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C:Species: Ralaenoptera borealis (sei whale)
C:Date: 13 Jul-1981 #sequence_revision 13-Jul-198: #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Species: Capra aegagrus Eircus (domestic goat)
C;Date: 13-Jul-1981 #sequence_revision 13-Jul-1981 #text_change 16-Jul 1999
         C.Date: 07-Sep.1990 *sequence_revision 07-Sep-1990 *text_change 16-Jul-:999
C.Accession: JQ0178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 FVNQHLGGSHLVEALYLVGGEKGFFYTPKTRGIVEUTGIGSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    · .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89.6%; Score 263.5; DR 1; Length 51: 92.3%; Pred. No. 2.1e-23; Live. 0; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Title: Species variation in the amino acid sequence of insulin. A;Reference number: A90029; MUID:66160119; PWID:5949593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F.1-30,31-51/Product: insulin #status experimental *MAT>
F.31-51/Domain: insulin chain A #status experimental *ACH>
F.7-37,19-50,36-41/Disuifide bonds: #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A:Accession: A01582
A:Molecule type: protein
A:Residues: i-30;31·51 <1SH>
C:Superfamily: insulin
C:Keywords: hormone; phorereas
F:1-30/Domain: insulin chain B #status experimental <BCH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SLOKRGIVEOCCISICSLYOLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31 ----RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity 60.5
hes 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Med. 40, 662-666, 1966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: protein
A; Residues: 1-30;31-51 <SMI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A:Reference number: A93142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
                                     JQ0178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C:Accession: A01586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       insulin - sei whale
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C:Accession: A01582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A:Accession: A01586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        insulin - qoat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R:Smith, L.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    â
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     â
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                  **Residues: 1-110 <SEL>
**Residues: 1-110 <SEL>
**Ricossareferences: EMBL:X61092; NID:q22808: PIDN:CAA43405.1: PID:q22809
**Crossareferences: EMBL:X61092; NID:q22808: PIDN:CAA43405.1: PID:q22809
**Note: sequence extracted from NCBI backbone (NCBIN:95185, NCBIP:95194)
**Referson, J.D.; Nehrlich, S.; Oyer, P.E.: Steiner, D.F.
**J. Biol. Chem. 247, 4866-4871, 1972
**Affile: Determination of the amino acid sequence of the monkey. Sheep, and Jog proinsul A:Reference number: A92111; MUID:72258016; PMID:46.46369
**Accession: A05232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C;Species: Pan troglodyres (chimpanzee)
C;Date: (4 Mar.1993 #sequence_revision 18 Nov-1994 #text_change 16-Jul-1999
C;Datession: A42179; $22058
R;Seimo, S.; Bell, G; Li, W.H.
Mol. Biol. Evol. 9, 193-203, 1992
A;Title: Sequences of primate insulin genes surport the hypothesis of a slower rate of A;Reference number: A42179; MUID:92219954; PR. 21560357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>.</u>;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           O. . . . . . . . . . . . . . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98 -- 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25 FVNOHLGGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPTALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Indels 34; Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A)Crossineferences: EMBL:X61089: NID:q36251: PIDM:CA4433.1: PID:g38252
A:Note: Sequence extracted from NCEL backlone (NCBIP:95067)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             34:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 267; DB 2; Length 116;
Pred. No. 1.66-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 267: DB 2: Length 110:
Pred. Nc. 1 5e-23;
0: Mismatches 0: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               F.25-54/Domain: insurin chain # status producted F.25-54/Domain: insurin chain # status producted F.25-54/Domain: insurin financin # status producted F.57-87/Momain: connecting peptide #status producted F.90-110/Momain: insulin chain # # status producted F.31-96,43-109,95-100/Disuifide # ponds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . . . . . . . . . . .
                                                                                                                                                                                                                                                                                                                                                                                                                                      C.Keywords: hormone; pancreas
F.1-24/Domain: Signal sequence *Status predicted <SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 FVNQHLCGSHLVEALYLVCGERGFFYTPKT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            insulin precursor - crab-eating macaque
C;Species: Macaca fascicularis (crab-eating macaque)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          i FVNQHLCGSHLVEALYLVCGERGFFYTPKT - - 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SLOKKGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIQKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      31 --- RGIVEQCCTSICSLYCLENYON 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --- RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 90.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      90.88;
60.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity 60.5 nes 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 insulin precursor - chimpanzee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                A;Molecule type: protein
A;Residues: 57-87 <PET>
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 52; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Astatus: preliminary
Asmolecule type: DNA
AsResidues: 1-110 <SET>
                                                                                                                                                                                                                                                                                                                                                                                    A;Introns: 63/1
C;Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Superfamily: insulin
A; Accession: B42179
A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A: Accession: A42179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Introps: 63/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Si
Matches 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JQ0178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

Š q Saps Gaps 232 #fext change [5:Jun 1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTR::/VEQCCTSICSLYQLENYCN 52 1 FVNOHLCUSHLVEALYLVCGERGFFYTPKA-GIVEQCCAGVCSLYQLENYCN 51 1 FVNUHLCGSHLVEALYLVCGERGFFYTPKTRGIVEOCCTSICSLYQLENYCN 52 FANOHLOGSHLVEALYLANGERGFFYTERA GLVEGCCASVCSLYQLENYCN 51 ..d amino acid sequence Query Match 89.6%; Score 263.5; DB 1; Length 51; Best Local Similarity 90.4%; Pred; No. 2.1e-23; Matches 47; Conservative 1; Mismatches 3; Indels 1 DB 1: Length 51; Indels C;Superfamily: insulin C;Keywords: hormone; pancreas P:1-30/Dwain: insulin chain B *status experi..on'al <BCH> P:1-10, 31-51/Product: insulin *status experiment: | <MAT> P:31-51/Domain: insulin chain A *status experimental <ACH> F:7-37,19-50,36-41/Disulfide bonds: *status predicted 89.6%; Score 263.5; DB 1 90.4%; Pred. No. 2.1e-23; 1; Mismatches 1: Mismatches insulin precursor - plu CiSpecies: Sus serola udmestica (domestic plu) CiDate: 22.5un 1981 *sequence_revision 22.5un Caccession: A01581, A94722; S16422; Anu8 45; Richance: R.E.: Ellis, R.M.; Bromer, W.W. Science: 161, 185 167, 1958 A.Title: Porcine proinsulin: characterization A.Title: Porcine proinsulin: characterization A.Reference number: A94240; Millis:882864485; PW. insulin Arabian camel (restative sequence) C/Species, Camelus directarius (Arabian ence) C/Date: 3 - Mar 1992 Escquence_revision (1-Mar C/Accession: A1278. A.Molecule type: protein A.Residues: 1 84 -CH2> R.Brown, H.: Sanger, F.: Kitai, R.: Blochem .d. 60, 566-565, 1955 A.Tille: The structure of pig and sheep insu-A;Residues: 1-30;31-51 <BRO> R;Snel, L.; Damqaard, U. Horm. Metab. Res. 20, 476-480, 1988 A;Molecule type: protein
A;Residues: 1-44,707,35-84 «CHAB;Chance, R.E.
Submittled to the Atlas, July 1970
A;Reference tumbur: A44572
A;Accession: A94572 Local Similarity 90.4 tes 47: Conservative A;Molecule type: protein A;Residues: 1-30;31-51 <BRO> A; Reference number: A90344 A:Accession: S16492 R; Danho, W.O. RESULT 14 1 NCMA

```
A.Title: Proinsulin heterogeneity in pigs.

A.Ricference number: A60835; MUID:89032178; PRID:3181865

A.Accession: A60835

A.Accession: A60836

A.Note: protein

A.Rosiducs: 33-88,40-62 <8RE>

A.Note: the authors report the characterization of a connecting peptide variant lack

A.Accession: H60835

A.Motecule Lype: protein

A.Rosiducs: 33-62 <8NE>

A.Motecule Lype: protein

A.Rosiducs: 33-62 <8NE>

A.Motecule Lype: protein

A.Rosiducs: 32-62 <8NE>

A.Motecule Lype: protein

A.Rosiducs: 32-62 <8NE>

A.Motecule Lype: protein

A.Rosiducs: 32-63 <8NE

A.Title: Insulin the structure in the crystal and its reflection in chemistry and the A.Reterence number: A90017

A.Contents: annotation: X-ray crystallography, 1.9 angstroms

C.Superfamily: Assulin Assulin experimental <RCHP

A.Content and the structure in the structure in the crystallography, 1.9 angstroms

C.Superfamily: Assulin chain H status experimental <RCHP

Fill 36/Domenn: Insulin chain H status experimental <RCHP

Fill 36/Domenn: Insulin chain H status experimental

C.Reywords: forcemer contenting pertide status experimental

C.Superfamily: Assulin chain H status experimental

C.Reywords: forcemer chain H status experimental

C.Superfamily: Insulin chain H status experimental

C.Superfamily: Assulin chain H status experimental

C.Superfamily: Insulin chain H status experimental

C.Superfamily: Assulin chain H status experimental

C.Superfamily: As
```

Search completed: September 15, 2003, 12:04:20 Job time : 9.57348 secs

GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.

OM protein - protein search, using sw model

September 15, 2003, 11:54:50; Search time 4.84588 Seconds (Without alignments) 504:633 Million cell updates/sec Run on:

Title: Perfect score: Sequence:

US-09-423-100-5
294
1 FVNQHLGGSHLVEALYLVCG......LVFGCCTSICSLYQLENYCN 52

Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

12786 (seqs, 47) 26705 (esphos Searched:

Total number of hits satisfying chosen parameters:

12786.

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt_41:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

1000		es .				
. OZ	Score	Match	Vuery Match Length	8	01	Description
	273.5	93.0	51	: -	INS BALPE	PO1310 hallaconomics
~	273.5	93.0	5.1	-	INS ELEMA	
~	268.5	91.3	5.1	-	INS ACCOR	
4	267	8.06	110	-	INS_CERAE	
5	267	90.8	110	-	I NS_HUMAN	
9	267	8.06	110	-	INS_MACEA	
7	267	8.0 6	110	-	INS_PANTR	
œ	263.5	89.6	51	-	INS_BALHO	
S.	263.5	9.68	T _S :	-	INS_CAMDR	•
10	264.5	89.6	51	~	INS_CAPHI	P01319 capra hireu
Ξ	264	89.5	108	٠.	INS_FIG	
15	263	£. ⊕8	110	_	INS_RABIT	P01311 orvetolagus
13	263	89.5	110	٠,	INS_SPETR	
14	262.5	89.3	51	-	INS_FELCA	
15	797	89	110	-	INS_CANFA	-
16	260	88.4	110	٠.	INS_CRILO	-
17	258.5	87.9	105	-	INS_BOVIN	
9	257	87.4	110	_	INS_PSAOB	
6.	256.5	87.2	51	-	INS_DIUMA	
50	254.5	86.6	105	-	INS_SHEEP	
21	252	7.58	98	_	INS_HORSE	POi310 equus cabal
7.7	251.5	85.5	51	-	INS_CHIBR	
23	251	85.4	108	-	INS_AOTTR	P10604 actus trivi
74	250	85.0	108	-	INSI_MOUSE	P01325 mus musculu
57	249	*	110	_	INSI_RAT	P01322 rattus norv
9 7	248.5	84.5	51	~	INS_ANSAN	P07454 anser anser
27	248	84.4		~	INS2_MOUSE	_
7.8	248	84.4		~	INS2_RAT	P01323 rattus norv
58	246	83.7	52	-	INS_ACIGU	P81423 acidenser q
30		3	51	-	INS_HYSCR	8
31	244.5	83.2	51		INS_TRASC	
35	238.5	81.1	103	-	INS_SELRF	
33	235.5	80.1	51	-	INS_ORNAN	_

PC1332 dallus dall	PG1333 anas platyr	P12703 alligator m	P09476 lepisosteus	P12708 zaccys dhum	P01334 crotalus at	P12706 xenopus lae	Pl2707 xenopus lae	P14806 petromyzon	P09477 platichthys	P29335 amia calva	P23187 oncorhynchu
INS CHICK	INS_ANAPL	INS_ALLMI	INS_LEPSP	: NS_ZAODH	INS CROAT	INSTENLA	INS2_XENLA	INS PETMA	INS_PLAFE	INS AMICA	INS_ONCGO
r: 4		-	_	_	_	_	_	,~ 1	-	_	,-4
107	81	5.1	52	3	51	106	106	57	5.1	52	5.0
3.8	19.4	78.7	78.6	77.7	77.4	77.0	77.0	75.5	73.5	72.8	71.8
34.5	233.5	231.5	231	228.5	227.5	226.5	226.5	222	216	214	211
~											

ALIGNMENTS

STANLARD: FRI: 5: AA. (Rel. 0), Created) (Rel. 01, Last sequence update) (Rel. 34, Last annotation update)	Balaenoptera physalus (Finback whale) (Common rorqual), and Balaenoptera physalus (Finback whale) (Puyseter catodon (Sperm whale) (Puyseter macrocephalus). Eukaryota: Metazoa: Chordata: Craniata: Vertebrata; Euteleostomi: Mammalia: Eutheria: Getartiodacryla: Cetacea: Mysticeti: Malaenopteridae: Balaenopteridae: Balaenopteridae: Balaenopteridae: Balaenopteridae: Mysticeti: NCBL_TAXID-9770, 9755; [1] SPETIES-B.physalus: SPECIES-B.physalus: SPECIES-B.physalus: Amma H., Titani K.; [2] Blochem. 56:285-293(1964). [2] Blochem. 56:285-293(1964). [3] Blochem. 56:285-293(1964). [3] SPECIES-P. calodon: Ito Y., Frijino M.; [3] SPECIES-P. calodon: Specim- and sel-whale insulins and their breakdown by Whales ppsin: Associate Pepsin.	Nature INI:1468 1469(1938). SEQUENCE. SPECIES-P. Catodon; SPECIES-P. Catodon; Initialian insulin. "Species differences in insulin.": "Species differences in insulin." "Arch. Blocker State 1960 GLUCOSF CONCENTRATION. IT INCREASES CELL PERKEABIL :Y TO MONUSACCHARIDES, AMINO ACIDS AND FATTY ACIDS. IT ACCELERABIL :Y TO MONUSACCHARIDES, AMINO ACIDS AND FATTY ACIDS. IT ACCELERABIL :Y TO MONUSACCHARIDES, AMINO ACIDS AND FATTY ACIDS. IT ACCELERABIL :Y TO MONUSACCHARIDES, AMINO ACIDS AND FATTY ACCELED AND GLUCOGEN SYNTHESIS IN LIVER! SUBUNIT: HETEROLIMER OF A B CHAIN AND AN A CHAIN LINKED BY IWO BISULIDIAR LOCATION: Secreted! SUBCELLULAR LOCATION: Secreted! SIMILARITY: RELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.	PIR: A919142; INWHF. HSSP: P01317: IAPH. HSSP: P01317: IAPH. InterPro; IPR054825: Ins/ISF/relax. SAMRT: SAM0078: ILGF: 1. Insulin family: Hormone; Glu se metabolism. CHAIN 1 30 iNSULIN B CHAIN. DISULIN 31 51 INSULIN A CHAIN. DISULEID 7 37 INTERCHAIN. DISULEID 19 50 INTERCHAIN. SEQUENCE 51 AA; 5766 MW; 9007B514691A7CD) CRC64;
6 1812) 2312) 2312-1986 (Ре 2011-1986 (Re OCT-1996 (Re ulin,	INS. Balaenoptera physalus (Finh Physeter catodon (Sperm what Bukaryota: Metazoa; Chordan Mamaila: Eukaryota: Metazoa; Chordan Balaenopteridae; Parian Portion 9770, 9755; [1] PARTIAL SEQUENCE. SPECIES*B.physalus; Hama H., Titani K., Sakaki Hama H., Titani K., Sakaki Hama H., Titani K., Sakaki The Amino acid sequence ii J. Blochem. 56:285-293(196: Species P. Catodon; Species P. Catodon; Shihara Y., Salio J., ito Shihara Y., Salio J., ito Structure oi sperm-and si Structure oi spe	Nature 181:1468 1469 SEQUENCE SPECIES-P. Catodon; Species differences Arch Blochem. Bloph -!-FUNCTION: INSUL! INCREASES CELL P FAITY ACTOS. IT CYCLE, AND GIYCO -!-SUBUNIT: HETERO! -!-SUBCELLUIAR LOCA -!-SUBCELLUIAR LOCA -!-SUMITARITY: RELO	HER, 94918; INWHE, PIK: A93142; INWHE, HSSP: P01317; IAPH. HSSP: P01317; IAPH. HSSP: P01317; IAPH. HSSP: P01317; IAPH. PROSITE: PS002462; INSULIN; INSULIN family; HOTMONE; G CHAIN AND CONS CHAIN BISULEID AND STATE BISULEID BISUL
RESULT 1 NN BALP 1 INS BALP 1 INS BALP 1 INS BALP 1 INS BALP 2 I - DIT 2 I - DIT 2 I - DIT 2 I - DIT 3 I I I I I I I I I I I I I I I I I I	00 00 00 00 00 00 00 00 00 00 00 00 00	R R R R R R R R R R R R R R R R R R R	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Gaps

- 1

Indels

.. -Sde 1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52 ... Score 273 5; DB 1; Length 51; Score 2/3 7.
Pred, No. 4, 90-27;
Pred, member 1: Indels ô

INS_ACCA P01324; 21 JUL 1986 (Rel. 01, Created) INS_ACOTA RESULT

5. AA

Э. Г.

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Acomys. Last sequence update) Last annotation update) Acomys cahirinus (Egyptian spiny mouse). 01, 35, (Re). (Re). 21 - JUL 1986 01 - NOV - 1947 Insulin.

Buenzli H.F., Humbel R.E., "Isolation and partial structural analysis of insulin from mouse (Mus Gaps musculus) and spiny mouse (Aconys cahiffus).";
Hoppe-Seyler's Z. Physiol. Chem. 353:444-450(1972).
I-FUNCTION: INSULIN DECREASES BLOOD GLUGOSE CONCENTRATION. IT
INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMING ACIDS AND
FAITY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE
CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.
-:-SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY "WO
DISULFIDE BONDS. 1 FVNQHLGGSHLVEALYLVGGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52 Score 268.5; DB 1; Length 51; Pred. No. 2e-26; +1+ SIMILARITY: BELONDS TO THE INSULIN/IGE/RELAXIN FAMILY. PIR, A01591: INMSSP INTERCHAIN (BY SIMILARITY). 992BD8B629047D3D : RC64; Insulin family: Hordened Cludose detains. CHAIN. INSULIN A CHAIN. BY SIMILARITY. 3; Mismatches -! SUBCELLUIAR LOCATION: Secreted Interferor (PROMBAN) insztabandax SMARI) SMOODA, ilder () COMPOSITION. MEDLINE=72189454; PubMed=5028210; PROSTITE PSHOZ6ZE INSULINE 91.38; 95.38; 5768 MW. Local Similarity 92.3 ses 48: Conservative MSSP: Pel308; LTYM A. NCBI_TaxID-10068; NON_CONS CHAIN DISULEID DISULEID SEQUENCE DISULFID Query Match CHAIN Matches SO THE FEET SERVICE CONTRACTOR ON THE SERVICE CONTRACTOR OF THE SERVIC QC. õ

1 FURGHLOSHLVEALYLVOGERGEFYTPKS GIVINGTSICSLYGGENYCK 51

P30407; P01309; 01-APR-1993 (Rel. 25, Created) 01-APR-1993 (Rel. 25, Last sequence update) 01-APR-1996 (Rel. 33, Last annotation update) 110 AA PRT: STANDARD: Insulin precursor. INS_CERAE

Cercopithecus aethiops (Green monkey) (Grivet). Eukaryota, Metazoa: Chordata: Craniata: Vertebrata; Euteleostomi; Mammalia; Eutheria: Primates; Catarihini; Cercopithecidae; Cercopithecinae, Cercopithecus, NCBI_TaxID=9534;

SEQUENCE FROM N.A.

Peterson J.D., Nehrlich S., Oyer P.E., Steiner D.F.; Debermination of the amino acid sequence of the markey, sheep, and dog proinsulin C-peptides by a semi-micro Edman degradation procedure.", MEDLINE-92219953; Pubmed-1560757; Scino S., Rell G.L., i.i W., "Sequences of primate insulin genes support the hypothesis of slower rate of molecular evolution in humans and apes than SEQUENCE OF 57-87, MEDLINE-72258016; Pubmed-4626369; Mol. Biol. Evol. 9:153 203(1992) monkeys.

:0

J. Biol. Chem. 247:4866-4871(1972).

-i- FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT
INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACIDS AND
FATTY ACIDS. II ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE
CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.

```
TISSUE Blood;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                within the 5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10]
             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss institute of Bioinformatics and the EMBL outstation the European Bioinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 FVNQHLCGSHLVEALYLVCGERGFFYTPKT---------------
SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO DISULFIDE BONDS.
SUBCEILLULAR LOCATION: Secreted.
SIMILARITY: BELONGS TO THE INSULIN/1GF/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human).
Eukaryota: Metazoa: Chordata: Cruniata: Vc. Brata; Eufeleosfomi:
Mammalia: Eufheria: Primates: Catarrhini; Frinidae; Hopo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-80054779; PubMed-503234;
Bell G.I., Swain W.F., Pictet R.L., Cordell B., Goodman H.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-80120725; PubMed>6243748;
Bell G.L., Pictet R.L., Rutter W.J., Cordell B., Tischer E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 267; DB 1; Longth 110; Pred. No. 6 30-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12019 MW: 95A1F54BE7B247F9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sures I.,
                                                                                                                                                                                                                                                                                                                                                                         insulin Jamily: Bormone: Glucose metabolist: Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                               INSULIN B CHAIN.
C PEPTIDE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  INSULIN A "HAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-80236313; PubMed-6248962;
Ullrich A., Dull T.J., Gray A., Brosius J.,
"Genetic variation in the human insulin q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            II- AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SLOKRGIVEQCCISICSLYOLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              - RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence of the human insulin dene-
                                                                                                                                                                                                                                                                                               InterPro: IPR004825; Ins/iGE/relax.
Pfam: PF00049; Ins.lin; !
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90.8%;
                                                                                                                                                                                                                                                                                                                                                        PROSITE: PSGG262: INSGLIN: 1.
                                                                                                                                                                                                                                            EMBL: X61092; CAA43405.1; -.
PIR: H42179; B42179.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Science 209:612-615(1980).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nature 284:26-32(1980).
                                                                                                                                                                                                                                                                                                                                                                                                           54
87
110
96
109
                                                                                                                                                                                                                                                                                                                                      SM00078; (138)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ilo AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
es 52: Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SECUENCE FROM N.A.
                                                                                                                                                                                                                                                                                   HSSP; P01308; 1AI0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEUTENCE PROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCB1_Tax1D=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Goodman H.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INS_HUMAN
P01308;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>_</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISHIFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                    SMART;
                                                                                                                                                                                                                                                                                                                                                                                             SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                               PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 5
1NS_HUMAN
1NS_HUMAN
AC P0130.
DT 21-JU130.
DT 21-JU130.
DT 15-SEI
DT 15-SEI
DT 15-SEI
DN 115-SEI
DN 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
   QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
```

```
A Stransherg R.L., Fernand E.N., Grouse L.B., Lerge J.G.,
A Klausherg R.L., Fernand E.N., Grouse L.B., Sheumen C.M., Shuller G.D.,
A Altschul S.F., Zeeberg B., Buetow K.H., Scharfer C.F., Bhat N.K.,
Hopkins R.F., Jordan H., Moore T., Mars S.L., Wang J., Hand E.,
A Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
As papledon M., Scares M.B., Bonaldo M.F., Gasavant T.L., Scheetz T.E.,
A Brownstein M.J., Usdin T.B., Toshiyuki S., Canninci P., Prange C.,
A Brownstein M.J., Usdin T.B., McKernan K.L., Malek J.A., Gindaralne P.B.,
A Hichards S., Motley K.C., Hale S., Garria A.M., Gay L.J., Hulyk S.W.,
Villaton D.K., Muzny D.M., Sodergren E.J., Li X., Gibbs R.A.,
A Hichards S., Wotley K.C., Hale S., Garria A.M., Gay L.J., Hulyk S.W.,
A Hillaton D.K., Muzny D.M., Sodergren E.J., Li X., Gibbs R.A.,
Mitting M., Madan A., Young A.C., Shevchenky Y., Bouffard G.G.,
A Blakesley R.W., Tourdman J.W., Green E.D., Dickson M.C.,
A Buttertield Y.S.N., Krzywinski M.L., Skalska U., Smallus D.E.,
A Schnetch A., Schein J.E., Jones S.J.M., Matra M.A.,
A Schnetch A., Schein J.E., Jones S.J.M., Matra M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lucassen A.M., Bell J.L., Julier C., Jathrop M.; "Susceptibility to insulin dependent diabetes mellitus maps to a 4.1 kb segment of DNA spanning the insulin gene and associated VNTR.";
"Nucleotide sequence of a cDNA clone encoding human preproinsulin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SYNTHESIS.
MEDLINE-75077277; PubMed-4443293;
Sieber P., Kamber B., Hartmann A., Joehl A., Riniker B., Rittel W.;
Sieber P., Kamber B., Hartmann A., Joehl A., Riniker B., Rittel W.;
Total Synthesis of human insulin under directed formation of the disulfide bonds.":
Helv. Chim. Acta 57:2617-2621(1974).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Fajardy T.I., Weill 3.J., Stuckens C.C., Danze P.M.P.;
"Description of a novel RFLP diallelic polymorphism (*127 Bsq1 C/G)
within the 5' region of insulin gene.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Oyer P.E., Cho S., Peterson J.D., Steiner D.F.; "Studies on human profinsulin. Isolation and amino acid sequence of the human pancreatic C-peptide.";
                                                                                                                    SEQUENCE FROM N.A.
MEDLINE-80147417; PubMed-6927840;
Sures I., Goeddel D.V., Gray A., Ullrich A.;
"Nucleotide sequence of human preproinsuin complementary DNA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ko A., Smyth D.G., Markussen J., Sundby F.:
"The amino acid sequence of the C-peptide of human proinsulin.":
Eur. J. Biochem. 26:190-199(1971).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (JUL-1998) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nicol D.S.H.W., Smith L.F.;
"Amino-acid sequence of human insulin.";
Nature 187:483-485(1960).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biol. Chem. 246:1375-1386(1971).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDILINE:22388257, Folloid 12477932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 57-87.
MEDLINE-71116410; PubMed-5101771;
                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-93364428; PubMed-8358440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-71257722; PubMed-5560404;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    human and mouse cDNA sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 25-54 AND 90-116.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nat. Genet. 4:305-310(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 1-59 FROM N.A.
                                     Nature 282:525-527(1979).
                                                                                                                                                                                                                                                                                                 Science 208:57-59(1980)
                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE PROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 57-87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        J. Biochem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FUSSUE-Panoreas;
```

```
INS_MACFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Onery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDILINE
                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sakura H., Iwamoto Y., Sakamoto Y., Kuzuya T., Hirata H.;
"Structurally abnormal insulin in a diabetic patient. Characterization of the mutant insulin A3 (Vall->Lou) isolated from the panciess.";
J. Clin. Invest. 78:1666-1672(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Shoelson S., Fickova M., Hancda M., Nahur A., Musso G., Kaiset E.i., Rubenstein A.H., Tader H.,
"Identification of a mutant human insulin predicted to contain a serine for phenylalanine substitution.":
Proc. Natl. Acad. Sci. U.S.A. 80:7390-7394(1983).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE 87175640; PubMed-3470784;
Chan S.J., Seino S., Gruppusc P.A., Schwartz R., Steiner D.F.;
*A mutation in the B chain couling readinn is associated with impaired
profesulin conversion in a ramily with hyporprofusulinemia.*;
Proc. Natl. Acad. Sci. U.S.A. 84:2194-2197(1987).
                                                                                                                                                                                                                                        Geiger R., Volk A.; Synthesis of human proinsulin C. "Synthesis of peptides with the properties of human proinsulin C peptides (hC peptide). 3. Synthesis of the sequences 14-17 and 9-13 of human proinsulin C peptides."; Chem. Ber. 106:199-205(1973).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . 'Ama A., Accili D., Gabbay K.B.,
                                                                                                                                                                                                                                                                                                                                                                                               SYNTHESIS OF 84-87.
MEDIANE-73161261; PubMed-469P55s;
MEDIANE-73161261; PubMed-469P55s;
MEDIANE-73161261; Database M., Trenth etc.,
Synthesis of peptides with the properties of herar projection peptides (n° peptide), it Schome turn he synthesis and projection the sequence 28 31 of summan preference 38 31 of summan pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in A.H., Steiner D.F.; utification and sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Barbetti E., Raben N., Kadowaki T., Dama A., Accili D., Gabbay K.H., Mercench J.A., Taylor S.I., Roth J., Tro unclaided patients with familial hyperproinsulinemia due to a mutation substituting histoline artificine at position 65 in the proinsulin molecule: identification of the mutation by direct sequencing of genomic deoxyribonucleic acid amplified by polymerase
                                                                           "Studies on polypeptides, IV. The synthesis i C-peptide of human proinsulin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Shibasaki Y., Kuwakami T., Kanazawa Y., Akanuma Y., Takaku F.; "Posttranstational cleavage of proinsulin is brocked by a point mutation in tamilial hyperproinsulinemia.":
                                                                                                                                      Hoppe-Seyler's 2. Physiol. Chem. 354:659-672(1973)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1983).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11-49.

    Ciin. Endocrinol Metab. 71:164-169(! + .).

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-84016053; PubMed-6312455;
Haneda M., Chan S.J., Kwok S.C.M., Ruben
"Studies on mutant human insulin genes"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     analysis of a gene eucoding [SerB24]ins. Proc. Natl. Acad. Sci. U.S.A. 80:636-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANTS LOS ANGELES SER-48 AND CHICAGO
MEDLINE-841/0233; Pubmed-64241:1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDIINE-85261996; PubMed-4019786;
SYNTHESIS OF 57-87.
MEDLINE=75040007; PubMed=4803504;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-87058122; PubMed-3537011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-90317021; PubMed-2196279;
                                                                                                                                                                                                                       MEDLINE-73161263; PubMed 4698555;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вег. 106:188-192(1973).
                                                                                                                                                                                        SYNTHESIS OF 65-69 AND 70-73.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT LOS ANGELES SER-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANT PROVIDENCE ASP-34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANT WAKAYAMA LEU-92.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT KYOTO LEU-89.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 chain reaction."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT HIS 89.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      [19]
VARIANT HIS 89
                                                             Naithani V.K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chem.
```

MEDLINE-92291307; PubMed-1601997; Yano H., Kitano N., Morimoto M., Polonsky K.S., Imura H., Seino Y.;

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25 FVNQHLCGSHLVEALYEVCGERGFFYTPKTYRKEAEDLOVGOVELGGGPGAGSLQPLALEG
                                                                                                                                                                                                                                                                                                             Hua Q.-X., Weiss M.A.:
"Comparative 2D NMR stadies of human insulin and despentapeptide insulin sequential resonance assignment and implications for protein butchmistry 30:5505-535(199).
                                                                                                                               Hua O. X., Weiss M.A.; Toward the solution structure of human insulin; sequential 2D lH NMR assignment of a des-pentapeptide analogue and comparison with crystal structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hua G.-X., Weiss M.A.;
"Two-dimensional NMR studies of Des-(B26-B30) insulin: Sequence-
specific resonance assignments and effects of solvent composition.";
Blochim. Biophys. Acta 1078:101-110(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps

    -1- FUNCTION: INSULIN DECREASES HOOD GLACOSE CONTENTRATION. 11
INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACIDS AND

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wetckam W., Groneberg J., Leineweber M., Wengenmayer F., Winnacker E.-L.; "The nucleotide sequence of cDNA coding for preproinsulin from the prime Nacleotide faccicularis."; Gene 19:179-183(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PATTY ACIDS, IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Macacu fascioularis (Crab euting macaque) (Cynomolqus morkey).
Eukaryota: Metazoa; Chordata; Craniata; Vertebiata; Eutelcostomi;
Mammalia: Eutheria; Primates; Catarrhin; Percepithecidae;
Cercopitheciae, Macacu.
NCRI TaxID=9541;
"A novel point mutation in the human insulin gene giving rise to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -i- SUBCELLULAR LOCATION: Secreted.
-i- SIMILARITY: BELONGS TO THE INSULIN/IGE/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 6, $6-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P30406, P01309;
21-JUL-1986 (Rel. 01, Created)
13-MUC-1987 (Rel. 05, Last sequence update)
01-FFB-1996 (Rel. 33, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                   hyperproinsulinemia (proinsulin Kyoto).";
J. Clin. Invest. 89:1902-1907(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 FUNCHLOGSHLVEALYLVOGERGFFYTPKT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 267;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95 SLOKRGIVEDCOTSICSLYULENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31 ----RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                         Biochemistry 29:10545:10555(1990).
                                                                                  STRUCTURE BY NMR.
MEDLINE-91104966; PubMed-2271664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       91265527; PubMed-1646635;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SECUENCE FROM N.A.
MEDLINE-83080474; Pubmed-6184262;
                                                                                                                                                                                                                                                                                     MEDLINE-91242467; PubMed-2036420;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90.88;
60.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 60.59
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRUCTURE BY NMR.
                                                                                                                                                                                                                                                                    STRUCTURE BY NMR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -! - SUBUNIT:
```

÷

```
Conservative
                                                                                                                                                87
110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PIR; A01582; INWHIS.
HSSP; P01317; IAPH.
                                       PIR; A42179; A42179
                                                                                                                                                                                                       110 AA;
                                                                                                                                                                                                                                       Similarity
                                                                                                                                        25
57
90
                                                                                                                                                                                                                                                 52;
                                                                                                                                                                               DISCLETD
DISCLETD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE.
                                                                                                                                                                       DISULFID
                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                            Juery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Insulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_CONS
                                                                                                                                                                                                                                       Best Local
                                                                                                                                                PROPEP
CHAIN
                                                                                                                             SIGNAL
                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                         RESULT 8
INS_BALBO
     ò
                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                        the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb.sib.ch/announce/or send an email to license@isb.sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                             -
                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FAGE EVOL. 9:193 203(1992).
FINCTION: INSULIN DECREASES BLOCK GLA 'OSE CONCENTRATION. IT FINCTIONS: INSULIN DECREASES CHAINTY TO MONOSA CHARIDES, AMINO ACIOS AND FAITY ACIDS. IT ACCELERATE GLYCOLYS: THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYMTHESIS IN LIVE.
SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota: Metazoa; Chordata; Craniata; V.rtebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
NCBI_TaxID+9598;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         υ
                                                                                                                                                                                                                                                                                             *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-92219953; PubMed-1560757;
Seino S., Bell G.L., Li W.,
"Sequences of primate his milin genes support the hypothesis of
slower rate of molecular evolution in humans and apes than in
                                                                                                                                                                                                                                                                   90.8%: Score 267: DB 1: Length 110; 60.5%: Pred. No. 6.3e-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIMILARITY: BELONGS TO THE INSULIN/ICF/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                          0; Indels
                                                                                                                                                                                                                                             11991 MW; 83C6E33A80A4Z0F9 CRC64;
                                                                                                                                                        Insulin family; Hormone; Glucose metabolism; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
                                                                                                                                                                                                  INSULIN A CHAIN.
                                                                                                                                                                              INSULIN B CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                       11. A
                                                                                                                                                                                                                                                                                          0: Mismatches
                                                                                                                                                                                                                         INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                     SLOKRGIVEOCCISICSLYQLENYCN 11C
                                                                                                                                                                                          PEPTIOE.
                                                                                                                                                                                                                                                                                                                                                           --- RGIVEQCCTSICSLYQLENYCN 52
                                                                           PIK: JQ0178; JQ0178.
HSSP: P01308; 1A10.
Interpro: IPR004825; Ins/IGF/relax.
Ptam: PF00049; Insulin: 1.
PHINTS: PR00277; INSULINB.
SMART: SM00078: IIGF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBCELLULAR LOCATION: Secreted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pan troglodytes (Chimpanzee).
                                                                                                                                              PS00262; INSULIN; 1.
                                                                   EMBL; J00336; AAA36849.1; -.
                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                    24
54
87
116
96
109
                                                                                                                                                                                                                                                       Query Match
Rest Local Similarity
S2: Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFIDE BONDS
                                                                                                                                                                                                                                             110 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SECOENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                     INS_PANTR
P30410;
                                                                                                                                   SMART; SM
PRUSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            monkeys."
                                                                                                                                                                                                              DISULFIL
                                                                                                                                                                                                                         DISCLETO
                                                                                                                                                                                                                                    DISULFID
                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                            CHAIN
PROPEP
CHAIN
                                                                                                                                                                    SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 7
INS_PANTR
  q
                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                               q
```

```
25 FVNQHLCGSHLVEALYLVCGEKGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          34; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -i- FUNCTION: INSULIN DECREASES BLOOD GLUCOSE, CONCENTRATION. IT INCREASES CELL PERREABILITY TO MONGSACCHARIDES, AMINO ACTICS AND FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.

-i- SUMONIT: HETERODIMEN OF A B CHAIN AND AN A CHAIN LINKED BY TWO DISCLEDE BONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam: PF00049; Insulin; 1.
PRINTS: PR00277; INSULINB.
SMART: SM0078; INSULINB.
PROSITE: PS00260: INSULIN: 1.
Insulin family; Hormone; Glucose metabolism; Signal: 3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ishihara Y., Saito T., Ito Y., Fujino M.; "Structure of sperm- and sol-whale insulins and their breakdown by whale pepsin."; The sol-whale s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota, Metazoa, Chordata, Cramiata, Verrebrata, Euteleostomi, Mammalia, Eutheria, Cetartiodactyla, Cetacea, Mysticeti, Balaenopteridee, Balaenoptera, WCBI_TaxiD=9768;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- SUBCELLULAR LOCATION: Secreted.
-!- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12025 MW; 41EB8DF798+37FF5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TINS_BALBO | STANDARD; | PRT; | DI en. | P01314; | PRT | DI en. | DI en.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C PEPTIDE.
INSULIN A CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INSULIN B CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INSULIN A CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INSULIN B CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 267; DB
Pred. No. 6.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Insulin family; Hormone; Glucose metabolism CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INTERCHAIN
or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HELLITHLEHHL HILL
85 SEQKRGIVEQCCISICSLYCGENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31 ----RGIVEOPPTSICSLYCLENYON 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro: IPR004825: Ins/IGF/relax.
SMART; SM00078: IIGF: 1.
PROSITE: PS00262; INSULIN: 1.
                                                                                                                                                                                                                                                                                                                             PDB; 1EFE; 29-MAR-00.
InterPro; IPR004825; Ins/IGF/relax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Balaenoptera borealis (Sei whale).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     188.07
50.58;
                                                                                                                                                              EMBL; X61089; CAA43403.1; -.
```

```
Local Similarity 90.4
hes 47; Conservative
    Bovidae: Caprinae: Capra.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD:
                                                                                                                                                                                                                                                      DISULFIDE HONDS.
                                                                                                                                                                                                                                                                                                                                   HSSP; PU1317; 1APR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 25-108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Insulia precursor.
                                                                                                                                                                                                                                                                                                               PIR; A01586; INGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sus serofa (Pig)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_1ax1D-9823;
                          NCBI_TaxID=9925;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P01315; 09TSJ5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                NON O NS
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISULF:D
DISULF:D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Amarger V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Georges M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISCIPTO
                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                         1.8 S. 1.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INS PIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INS_PIG
      뎚
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 _;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --
                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   dromedarius)...;
3. Fac. Med. Haghdad 14:16:28(1972).
1. Fac. Med. Haghdad 14:16:28(1972).
1. FOUNTION: INSULIN DECREASES BLOOD GUUGOSE CONCENTRATION. 11
INCREASES CELL PERMEAHLITY TO MONOSACCIARIDES, AMINO ACIDS AND
FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE
CYCLE. AND GLYCOGEN SYNTHESIS IN LIVER.
1: SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                 Camelos dromedaros (bremedaro) (Arabosa const).
Eukarysta: Metazoaz Pisoriakan Traciala, Vertebrata, Estecentos,
Mammalos, Batteria, Cetariodaenyla: Pjogsalo camelodac, camelus
                                                                                                                                   | FUNDHIGGSHIJEALYINGGERGEFYTPKA-GIVEGGGASTGSLYQLENYCN 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Danko M_{\star}(0) : The isolation and characterization of insulin of came) (dametus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 FVNQHLCGSHLVEALYIVCGERGEFYTPKTRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 FANCHEGOSHEVEALFELLELLELLE THEST TSTELLE TELLE TELLE
                                                                                                               1 FVNOHLOGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYULENYCN 52
                                                                              ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>.</u>
                                    Score 263.5; DB 1; Length 51; Pred. No. 8.2e-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1: Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -:- SUBGELLUTAR LOCATION: Secreted.
-: SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY
                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               901E84BA085A7DDD CRC64;
9007B50E400A7DDD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8.20-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21 JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
01 FEB-1996 (Rel. 33, Last annotation update)
                                                                                                                                                                                                                                                                                                           Last sequence appare)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INSULIN B CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INSULIN A CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51 1
                                                                                                                                                                                                                                                    51 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Insulin family, Hermone, Glacose metabelism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1: Mismatches
                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 263.5;
Pred. No. 8.26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                    PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Interpro: 1P#004825; Ins/1GF/relax.
SMART: SM00078: 11GF; 1.
                                                                                                                                                                                                                                              INS_CAMDR STANDARD; F P01320; S1-JUL 1986 (Rei. 0), Created) 21 JUL-1986 (Rei. 0), Last sequent FEH-1996 (Rei. 3), Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE: PS00262; INSULIN: 1.
                                  89.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     89.58:
90.48:
5723 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5693 MM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          47; Conservative
                                                      Local Similarity 92.3
Ps 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  °
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Capra hircus (Goat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DISULFIDE HONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PIR: A92782: INCMA
HSSP: P01317; ZINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
51 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBL TaxID=9848;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INSCAPHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_CONS
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE.
SEQUENCE
                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISHLFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Insulia.
                                                                                                                                                                                                                                                                                                                                               Insulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P01+19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 10
                                                                                                                                                                                                                                INS_CAMDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INS_CAPH;
                                                                                                                                                                                                                                                                                                                                                                     Z.
                                                                                                                                                                                                              RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10
```

```
Gaps
                                                                                             1. FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACIDS AND FAITY ACTION: IT ALCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGGEN SYNTHEISES IN LIVER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Euteleostomi;
Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIJINE-66286485; PubMed-5657063;
Chance R.E., Ellis R.M., Bromer W.W.;
"Porcine proinsulin: characterization and amino acid sequence.";
Science 161:165-167(1968).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Comparative sequence analysis of the INS 1GF2-H19 gene cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ., Nguyen M., Laere A.S., Braunschweig M., Nezer C., Andersson L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 51;
MEDLINE-66160119; PubMed-5949593;
Smith L.F.;
Species variation in the amino acid sequence of insulin.";
Am. J. Med. 40:662-666(1966).
                                                                                                                                                                                                                                        -:- SUBCELLULAR LOCATION: Secreted. -:- SIMILARITY: BELONGS TO THE INSULIN/IGE/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
Han X.G., Tuch B.E.;
"Complete portine proproinsul: cDNA sequence.";
"Complete portine proproinsul: cDNA sequence.";
Submitted (MAY-1998) to the EMBL/GenBank/DEbJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.007B50CDB4E7DFD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota, Metazoa, Chordata, Craniata, Vertebrata,
Mammalia, Butheria, Cetartiodaetyja, Suina, Suidae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 263.5: DB 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                            CESULO CARLEY, BOLOLOG OF COSS metalocusmociNAIN (CHAIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INSULIN A CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                   letering IPR004625; iss/iGE/iolax
SMART; SMC-078; ille, i.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-Large white;
MEDLINE-22135958; Pubmed 1214U686;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-JUL-1986 (Rel. 01, Created)
16-OCT-2001 (Rel. 46, Last sequ
28 FEB-2003 (Rel. 41, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mamm. Genome 13:388-398(2002).
                                                                                                                                                                                                                                                                                                                                                                                                  PSCOREZ, INSTILLA, I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     89.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91. 48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5692 MW:
```

ï

~

```
å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 급
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb sib.ch).
                                                                                                                                                                      X-RAY CRYSTALLOGRAPHY (1.5 ANGSTROMS).
ISAGGS N.W., Agarwal R.C.:
Experience with fast Fourier least squares in the retinement of the crystal structure of rhombohedral 2-zinc insulin at 1.5-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Diao J.-S., Wan Z.-L., Chang W.-R., Liang D.-C.;
"Structure of monomeric porcine DesRI-B2 despentapeptide (H26-B30) insulin at 1.65 a resolution."

*Structure of monomeric porcine DesRI-B2 despentapeptide (H26-B30) insulin at 1.65 a resolution.

**Tructure of monomeric porcine DesRI-B2 despentation of the Crystalogr. DesRI-B3 (H27).

**Increases cell permeability to Monosaccharibes, amino Avid. AND FATTY Acids. If Accelerates Givcolvsis, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.

**Increases cell permeability of a B CHAIN AND AN A CHAIN LINKED BY INC. DISULFIDE BONDS.
                                                                                                                                                                                                                                                                                        X-KAV CRYSTALLBERAPHY (1 5 ANISSPORS)
MEDLINE B9094318, Furmon 2405483;
Baker E.N., Blunderl T.G., Cuffold C.E., Cuttolid S.M., Dadson E
                                                                                                                                                                                                                                                                                                                                          Dodson G.G., Crowfoot Hodgkin D.M., Butterd R.E., Isaars N.W., Reynolds C.D., Sakabe K., Sakabe N., Vijayan N.M.; "The structure of 22n pig insulin crystals at 1.5 A resolution."; Philos. Trans. R. Soc. Lond., B. Biol. Sci. 119:369-456(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WWW "http://www.expasy.org/spotlight/articles/sptlt009.html".
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Badger J., Harris M.R., Reynolds C.D., Evans A.C., Dodson E.J., Dodson G.G., North A.C.T.,
"Structure of the pig insulin dimer in the cubic crystal.";
Acta Crystallogr. B 47:127-136(199!).
                                                                 X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS).
Blundell T.L., Dodson G.G., Hodgkin D., Mercola D.;
"Insulin. The structure in the crystal and its reflection in chemistry and biology.";
Adv. Protein Chem. 26:279-402(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Balschmidt P., Hansen F.B., Dodson E., Rogson G., Korber F. "Structure of porcine insulin corrystallized with clupeine Acta Crystallogr. B 47:975-986(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBCELIULAR LOCATION: Secreted.
SIMILARITY: BELONGS 7D THE INSULIN/IOF/RELAXIN FAMILY.
INTERARSE: NAME-FPOLEIN SPOLIIqht;
NOTE-ISSUE 9 Of April 2001;
                                Submitted (JUL-1970) to the PIR data bank.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAY CRYSTALLOGRAPHY (1.65 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                     RAY CRYSTALLOGRAPHY (2.0 ANGSTRUMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMHL: AF064555; AAC77920.1; ALT_INIT.
EMHL: AY044828; AAL69550.1; -.
                                                                                                                                                                                                                                                             Acta Crystallogr. A 34:782-791(1978)
                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINS-92126280; PubMed-1772633;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-91222450; PubMed-2025410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAY CRYSTALLOGRAPHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PDB; 31NS; 09-JAN-89.
PDB; 41NS; 31-JUL-94.
REVISION TO 59.
Chance R.E.;
                                                                                                                                                                                                                                           resolution.
```

31-JAN-94. 15-0CT-91. 15-0CT-91. 15-0CT-91. 29-JAN-96.

112A;

112B; 2TCI;

31-JAN-94.

PDB; 61NS; PDB; 71NS; PDB; 91NS;

```
.
0
                                                                                                                                                                                                                                                                                                                                                                                                                                      84
                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Insulin gene expression and insulin synthesis in mammalian neuronal
                                                                                                                                              PROSITE: PS00262: INSULIN; 1.
Insulin family; Hormone; Glucose metabolism; Signal; 3D structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota, Metazoa, Chordata, Craniata, Verlebrata, Euteleostomi,
Mammalia, Eutheria, Jagomorpha, Leporidae, Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN-New Zealand white; IISSUB-Pancreas:
MEDLINE-94179230; PubMed-8132571;
Deveskar S.U., Glodings S.J., Kajakumar P.A., Carnaqhi L.R.,
Menon R.K., Zahm D.S.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Species variation in the amino acid sequence of insulin.";
Am. J. Med. 40:662-666(1966).
                                                                                                                                                                                                                                                                                                                                                          89,5%; Score 26%; DB L; Length 108; 60,7%; Pred. No. 1.96*25;
                                                                                                                                                                                                                                                                                                                                                                                    1; Indeis
                                                                                                                                                                                                                                                                                                                                 .1671 MW: CB44918429858EBE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (Rel. 34, Last sequence update)
(Rel. 34, Last annotation update)
                                                                                                                                                                                    INSULIN B CHAIN
                                                                                                                                                                                                            INSULIN A CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           110 AA
                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                               1 FVNQHLGGSHLVEALYLVGGERGFFYTPKT - -
                                                                                                                                                                                                                           NIVERCHAIN
                                                                                                                                                                                                                                        INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85 OKRGIVEGCCTSICSLYQLENYCN 108
PDB; IMPJ; 29-JAN-96.
PDB; 3MTH; 29-JAN-96.
PDB; IDEI; 16-JUN-97.
PDB; ISDB; 01-APR-98.
PDB; IXEI; 16-FEB-97.
PDB; IZEI; 16-FEB-99.
PDB; IZNI; 28-JAN-98.
INELEDIO: IPR004825; Ins/ISF/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31 ***RGIVEQCCTSICSLYQLENYON 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Biol. Chem. 269:8445-8454(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 25-54 AND 90-110.
MEDLINE-66160119; Pubmed-5949593;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-JUL-1986 (Rel. 01, Created)
01-FEB-1996 (Rel. 33, Last sequ
01-OCT-1996 (Rel. 34, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oryctolagus cuniculus (Rabbit)
                                                                                                                                                                                                                                                                                                                                                                                      51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                    Ptam; PF00049; Insulin;
SMART; SM00078; IIGF; 1.
                                                                                                                                                                         924
938
938
944
948
948
948
948
948
948
948
                                                                                                                                                                                                                                                                                                                                 108 AA;
                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SECUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID+9986;
                                                                                                                                                                                                                                                                                           86
100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Smith L.F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INS_KABIT
P01311;
                                                                                                                                                                                                                        D.SCLF10
D.SCLF10
D.SCLF10
                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                          Query Matich
                                                                                                                                                                                                                                                                                                                                                                           Sest Loral
                                                                                                                                                                                                 PROPEP
CHAIN
                                                                                                                                                                                                                                                                HELIX
STRAND
HELIX
                                                                                                                                                                     SIGNAL
                                                                                                                                                                                                                                                                                                                      STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cells.
                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                       HELIX
                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INS_RAHIT
```

```
RESULT 14
INS_FELCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      at ches
           SO THE FEET WENT WITH THE PRINCE OF THE PRIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the SWISS Institute of Bioinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license afreement (See http://www.isb-sib.ch/announce/or send an email to license*lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25 FVNQHLGGSHLVFALXI VGGERGFFYTPKSRREVFELQVGQAFLGGSPGAGGLAPSALEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34: Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACIDS AND FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHAIE CYCLE, AND GLYCOCAE, SYNTHESIS IN LIVER.
SUBUNIT: HETEKODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Spermophilus tridecomlineatus (Thirteen-lined ground squirrel).
Eukaryota, Metazoa, Chordala, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Rodentia, Sciuroquathi, Sciuridae, Sciuridae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89.5%; Score 263; DB 1; Length 110; 59.3%; Pred. No. 1.9e-25;
                                                                                                                                         SUBCELLULAR LOCATION: Secreted.
SIMILARITY: BELONGS TO THE INSULIN/: //RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           E -> Y (IN REF. 3).
B2D2975B85D77FA8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Insulin family: Hormone: Glucose metaborism: Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15 SEP 2003 (Rel. 42, Greated)
15 SEP 2003 (Rel. 42, Last sequence update)
15 SEP 2003 (Rel. 42, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INSULIN B CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C PEPTIDE.
INSULIN A CHA.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NO AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 FVNQHLCGSHLVEALYLVCGERGFFYTPKT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     i: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     85 ALCKROTVECCOTSTOLENYON 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --- RGIVEQCCISICSLYOLENYON 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P.R.T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IPR004825; Ins/10F/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ..
Œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Piam: PF00049; Insulin: 1.
SMART: SM00078: 11GF; 1.
PROSITE: PS00262: INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL: 003610; AAA19033.1;
EMBL: M61153; AAA.2540.1;
PIK; A534.48; INPR
HSSP; P01308; 11YM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity 59.3
Pes 51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24
54
87
110
100
100
                                                                                                                    DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         110 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE PROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Insulin precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCR1_Tax10-43179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE-Pancreas;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Spermophi, us
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INS SPETR
091X13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          interPro:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAIN
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.05 SPETR
1.05 SPETR
1.07 15 SE
0.07 15 SE
0.07 15 SE
0.08 10 SE

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ठे
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformaties and the EMBL outstation the European Bioinformatics listitute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Haliden G., Gafvelin G., Mutt V., Joernvall H.;
"Characterization of cat. insulin."
Arch Blochem. Blophys. 2027(1986).
1- FUNCTION: INSULIN DECREASES BLOOD GLUCCSE CONCENTRATION. IT
INCEASES CELL PERECABLITY TO MONESACCHARIDES, AMINO ACIDS AND
FATTY ACIDS. IT A CELEFATES GLYCOLYSIS, THE PENTOSE PHOSPHATE
CYCLE, AND GLYCOLOLN SYNTHESIS IN LIVER.
CYCLE, AND GLYCOLOLN SYNTHESIS IN LIVER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Felis silvestris catus (Cat).
Bukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Carnivora, Fissipedia, Felidae, Felis.
NCBL_TaxID-9685,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89.5%; Score 263; DB 1; Length 110; 59.3%; Pred. No. 1.90-25;
Live 1; Mismatches 0; Indels
INTERCHAIN (BY SIMILARITY).
INTERCHAIN (BY SIMILARITY).
BY SIMILARITY.
4511768D6622BEE5 CRC64:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRINTS.
PROBLES CONTROLLED TO SERVICE TO SER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  06, Created)
06, Last sequence update)
40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Y AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       85 ALOKRGIVEOCCTSICSLYOLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31 ----RGIVEQCCTSICSLYQLENYCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Interpro: IPR004825; Ins/IGE/relax.
Pfam: PF00049; Insulin: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-86214076; PuthMed-3518635;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL: AY038604; AAK72558.1; -.
HSSP; P01308; 1LNP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100 1
12054 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMC(678) 11GH; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity 59.3
nes 51: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             43 1
95 1
110 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-JAN-1988 (Rel.
01-JAN-1988 (Rel.
16-OCT-2001 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25
57
57
31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INS_FELCA
P06305;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DISULFID
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DISCLFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nsulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRINIS
```

σ

```
between the Swiss Institute of Bioinformatics and the EMBL outstation. The European Bioinformatics Institute. There are no restrictions on its more by non-profit institutions as lone: as its content is in no way modified and this statement is not remove! I Usage by and for commercial entities requires a license agreement (see http://www.isb.sh.ch/announce/or send an email to license*lisb.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>.</u>;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Am. J. Med. 40:562-666[1965].

-1. FUNCTION: INSULIN DECREASES HIGHD SILICUSE CONCENTRATION. II
INCREASES CELLE PERMEMBILITY TO MON'SACCHARIDES, AMIN'S ACIDS AND
FATTY ACIDS. IT ACCELERATES GLYCKKYSIS, THE PENYOSE PHOSPHATE
CYCLE, AND GLYCKGEN SYNTHESIS IN LIVER.
-1. SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
MEDIJNES 8109071. PubMeds6296142;
KWOK S.C.M., Chan S.J., Striner D.F.;
"Cloning and nucleotide sequence analysis of the dog insulin gene.
"Cloning and sequence of canine preproinsulin predicts an
additional C-penide Tragment.";
J. Biol. Chem. 258:2357-2483(1983).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota, Metazoa, Čhordata, Graniata, Nortebrata, Eureleostomi,
Mammalia, Eutheria, Carnivora, Fissipedio, Canidae, Canis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 FVNOHICGSHLVEALYLVGGROPFYTPKTRSIVEQCTTSLCSLYGLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FAMOUR GISHT FOR THE CONTROL OF THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 262.5; DB 1; Length 51;
Pred. No. 1.1e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Smith L.F.,
"Species variation in the amino acid sequence of insulin.";
Am. J. Med. 40:662-666(1966).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ** SUBCELLIDIAR LOCATION: Secreted.
** SIMILARITY: RELONGS TO THE INSULINZIGEZEDAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Insulin family; Hormone; Glucose metabolism; Signal.
                                                                                                                                                                                                                                                                                                                                                                        9007B5096A0A7DDD CRC64;
                                                                                                                                                                                                   INSULIN A CHAIN.
INTERCHAIN.
INTERCHAIN.
                                                                           Insulin tamily; Hormone; Glucose metabolism. CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             110 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21-301-1986 (Rel. 0), Created)
21-301-1986 (Rel. 0), tast sequence ::pdo
01-FEB-1996 (Rel. 3), Last annotation up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterProj 194004825; Ins/IGF/relax
Plam; PF00049; Insulin; 1.
SMART: SM00078; IlGF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIINE-66160119; Pubmed-5949593;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SMART: SM00078; IlGF; 1.
PROSITE; PS00262; INSULIN; 1.
                                   PROSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        89.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SECUENCE OF 25-54 AND 90-110
                                                                                                                                                                                                                                                                                                                                                                        5745 MW:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMHL: V00179; CAA23475.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 90.4
Matches 47: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD:
SMART; SM00078; IIGF; 1
                                                                                                                                                                31
51
37
50
41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Canis tamiliaris (Dog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DISULTINE BONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSSP; P01317; IAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                        51 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCB1_Tax1D=9615;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INS_CANFA
                                                                                                                                                                                                                                                                                            DISULFID
                                                                                                                                                                NON_CONS
                                                                                                                                                                                                                                           DISCLFID
                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIGNAL
                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 15

INS_CANPA

INS_CANPA

IN 21-JU

DT 21-JU

DT 21-JU

DT 21-JU

DT 21-JU

DT 21-JU

DT 21-JU

DN 101-FE

CO Manma

CO Manma

CO Manma

CO Manma

RR M WEDLI

RR M WEDLI

RR M WEDLI

RR M MEDLI

RR M MED
DR
KW
FT
FT
FT
SO
SO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
```

```
30
                                                                                                                                                    25 FVNQHLCGSHLVEAL/YLVCGERGFFYTPKARREVEDLGVRDVELAGAPGEGGLQPLALEG 84
                                                                                                        34; Gaps
                                                                                  Length 110;
                                                                                                          1; Indels
                                                                                                                               54 INSULIN B CHAIN.
87 C PEPTIDE.
1130 INSULIN A CHAIN.
96 INTERCHAIN.
109 INTERCHAIN.
100
x; 12190 MM; A574791864A4FB98 CRC64;
                                                                                  89.1%; Score 262; DB 1;
59.3%; Pred. No. 2.6e-25;
live 0; Mismatches 1;
                                                                                                                                                                                    45 ALORROLVEOCHESICSLAVOLENYON 110
                                                                                                                                                                          41 --- ROTUFOCHTSTOSLYGLENYCH 52
                                                                                               Best Local Similarity 59.3
Matches 51; Conservative
25
57
90
31
43
110 AA;
                               DISULFID
DISULFID
DISULFID
                                                              SEQUENCE
                                                                                      Query Match
 CHAIN
PROPEP
CHAIN
 FT
FT
FT
FT
SO
                                                                                                                                                  â
                                                                                                                                                                            3
                                                                                                                                 Š
```

Search completed: September 15, 2003, 12:01:40 Job time : 4.84588 secs

	Ltd.	
2.1.6	Compugen Ltd	
version	2003	
Cencore	(c) 1993 -	
	Copyright	

September 15, 2003, il:54:30 ; Search Lime 20.3154 Seconds (without alignments) 660.520 Willion cell updates/sec	μτα.		<pre>00 : Search time 20.3154 Seconds (without alignments) 660.520 Million cell updates/sec</pre>	
Copyright (5) 1993 - 2003 Totein - protein search, using sw model On: September 15, 2003, il;54:30	Compuden		: Search B Without all 60,520 Mill	
d E	5007	OM protein - protein search, using sw model	Run on: September 15, 2003, 11:54:30 (w	

US-09-423-100-5 294 1 FVNOHLGGSHLVEALYLVCG......IVEQCCTSICSLYQLENYCN 52 Title: Perfect score: Sequence:

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

8 405.25 sergs, 25405.2604 rest turns Searched:

1,11,130 % Total number of nits satisfying chosen person beas

Minimum DR seq length: θ Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database :

SPTREMBL_23:*

| Sp_archea:*
2: Sp_barcheis:*
3: Sp_fund:*
4: Sp_human:*
5: Sp_human:*
5: Sp_mho:*
5: Sp_phage:*
5 sp_virus:*
sp_vertebrate:*
sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:* 512777

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

					SCHMAREES	
		o#C				
Result No.	Score	Query	Query Match Length DB	108	10	Description
	267	90.8			Q8HXV2	UBhxv2 popus pyama
7	263	89.5		1 1	1 x 1 4	O91xi3 spermonhilu
~	157	85.4	110	æ	O9WNW6	OSWING (P) is silve
7	219.5	7.47		~	0.91807	OfiRal rana minier
ټ	201.5	5.8.5		13	CORTAR	Ogstas pantodon bu
œ	195.5	66.5		13	OPDDES	Ogdde5 brachydanio
۲	195.5	66.5		13	0902N4	Ogozná catla catla
æ	195	66.3		13	098160	
ς.	2.83.5	65.8		13	142060	
10	191.5	65.1		13	098TA7	O98ta7 Ostenglossu
1;	187.5	63.8		13	Q98TA9	
12	186.5	63.4		13	Q98TB1	
	185.5	63.1		13	098TB2	
7	146	49.7		9	Q8H281	O8hz81 gorilla gor
15	146	49.7	65	9	O8HZ80	O8hz80 pongo pygma
16	144	49.0	207	13	00 x 060	090xd0 cyprinus ca

073721 tilapia sp. 08av14 petromyzon	093607 paralichthy	073720 oreochromis				093527 paralichthy	09yi57 acanthopagr		091476 salmo salar	U91475 salmo salar	091231 oncorhynchu	C91162 oncorhynchu	091230 oncorhynchu	042336 myoxocephal	P81268 oncorhynchu	'n		OBjie4 brachydanio		Udmji5 sus scrofa	093380 meleagris g	U9iaaO carassius a	091914 ctenopharyn	Qymyx4 bos indicus	090vv9 brachydanio	U9pwk2 carassius a	098sr6 megalobrama
3 073721 3 08AV14	Ī	3 07.37.20			3 057436	-	3 Q9Y157	3 091161	3 091476		3 091231		3 091230		3 P81268	s 091965	4 C9144 s	4 CBUIE4	1 142425	CAMULT	4 093380	3 USIAAU	3 091914	C -MYX4	6AA06: F	3 19PWK2	3 U98SR6
215 1	159	182	182	182 1	185	186 1	185 1	1:6 1	117 1	145 1	149 1	155	161 1	184 1	188	188 1	017	212	215	9 77	15.4	79	11.7	149 6	161 1	161 1	161
0.44 48.8	48.1	48.1	48.1	48 · I	48.1	8	48.0			•	47.8		47.8			47.8	47.6	4.3		47.1	47.1	46.8	46.8		46.8		46.8
144	Ξ.	141.5	5.141.5	141.5	247.5	141.5	141	140.5	140.5	140.5	140.5	140.5	140.5	140.5	140.5	140.5	140	53.1	: -	v .	5 22	137.5	147.5	: 37.5	137.5	137.5	137.5
17	19	20	77	22	23	54	52	56	2.7	28	58	30	31	7.5	33	5.4	ř.		Ç	1.	ž	0	- -	4.2	•	44	۲. ۲

ALLIGNMENTS

		;;	30	
RESULT 1 08HXV2 1D 08HXV2 1D 08HXV2: PRELIMINARY, PRT; 120 AA. 1D 08HXV2: DT 01-MAR-2003 (TEMMELTEL, 23, Created) DT 01-MAR-2003 (TEMMELTEL), 23, Last sequence update) DE 101-MAR-2003 (TEMMELTEL), 23, Last annotation update) DE 10SULID precursor.	RA Stead J.D.H., Jeffreys A.J.; RT "Hapiotype diversity at the insulin region."; RT "Abpiotype diversity at the insulin region."; RL Submitted (JUE-2002) to the EMBL/Genbank/Dub. databases. DR EMBL: AY137503; AAN06937.1; SQ SEQUENCE 110 AA: 12038 MW: 2202832894F520F8 CRC64;	Ouery Match 90.8%: Score 267; 156-6; Length 110; Best Loval Similarity 60.5%; Pred. No. 1e-28; Matches 52; Conservative 0; Mismatches 0; Indels 34; Gaps	Oy 1 FVNQHLGGSHLVEALYLVCOFRGFFYTPKF	0y 31RGIVEQCCTSICSLYQLENYCN 52 [

.; ;

PRT: 110 AA.

RESULT 2
091X13
1D 091X13
AC 091X13; PRELIMINARY; PRT;
DT 01-DEC-2001 (TEMBLEel. 19, Created)

```
091807.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              O98TAB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         U98TA8
                                                                                                                                              RESHLT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 5
                                                                                                                                                                    091803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              098TA8
                                    ŝ
                                                                        a
                                                                                                                                                                                                                A PART A 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>٠</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 FVNOHLCGSHLVEALYLVCGERGFFYTPKT-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14. Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34; Gaps
                                                                                                                                                                                                                                           Tredrea M.M., Buck M.J., Gahaniyogi J., Squire T.L., Andrews M.T., Tredrea M.M., Buck M.J., Gahaniyogi J., Squire T.L., Andrews M.T., Redulation of PDK4 expression in a hibernating mammal.;
Submitted (JUN-201) to the EMBL/Genbank/DBSJ databases.
--- SIMICARITY: BELONGS TO THE INSULINGE/FELAXIN FAMILY.
EMBL AV03664; AAK72548.1.
HSSP: P01404 ILNE
INTERPRETED 1186
                                                              Spermophilus tridecemlineatus (Thirteen-lived ground squirrel)
Eukaryota: Metazoa: Chordata: Craniata: Vel'ebrata: Euteleostomi:
Mammalia: Eutheria: Rodentia: Sciurognathi, Sciuridae: Sciurinae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota, Metazoa, Chordata, Craniutu, Vertebrata, Eataleostemii.
Mammalia: Butheria, Carnivora, Pissipedia, Felidae, Felis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 FVNQHLCGSHLVEALYLVCGERGFFY1PKT-- --- -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   89.5%; Score 26%; DB 11; Length 110; 59.3%; Pred. No. 4.6e-28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12004 MW: 4511768066228EES CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROSITE: PS00262: INSULIN: 1.
SEQUENCE 110 AA: 12069 MW: 95FB6E17007BECA4 CRC64;
01-DEC-2001 (TrEMBLrel. 19, Last sequence update) 01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAR-2002 (TrEMBLrel, 25, Created)
01-MAR-2002 (TrEMBLrel, 20, Last Sequence update)
01-MAR-2003 (TrEMBLrel, 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             85.4%; Score 251; DB 6; 55.8%; Pred. No. 1.6e-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NA CI!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            85 ALUKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      31 *****RGIVEQCCTSICSLYQLENYON 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro: IPR004825; Ins/IGF/relax
Plam, PR00494; Insulin; 1,
PRINTS; PR00277; INSULINB.
SMART; SM00078; IIGF; 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Felis silvestris catus (Cat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PS00262: INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRINTS: PRC0277; INSCLINE
SMART; SMO0078; ITSF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Okamoto S., Morimatsu M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity 55.8%
hes 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 59.3
Watches 51, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                              Ptam: PF00049: Ins.lin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110 AA;
                                                                                                                                                                                                      SECURINCE FROM N.A.
                                                                                                                                                           NCB1_Tax10-43179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-Pancreas;
                                                                                                                                                                                                                              TISSUE-Paucreas;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCB1_Tax1D=9685;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     insuiin."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Preproinsulin
                                                                                                                                     Spermophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match
                                                Instilin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OBWNW6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OBWNWG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Aatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sat
Tec
  ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
```

```
1 11:11111:1111::111::112:11::13
24 FDNQYLGGSHIJFRALYMVCGGRGFFYSPRSPPDLEJELVNGLGGSEIJJEMQVOSOAFQKR 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         frwin D.M., Sivarajah P.;
Proinsulin cONAs from the leopard froq, Rana pipiens: evolution of
Proinsulin processing ".
Comp. Biochem. Physiol. 1258:405-410(2000).
                                                                                                                                                                                                                                                                                                                 Rana Fipiens (Northern Jeopard froq).
Eukaryota, Mctazoa, Chordata, Craniata, Vertebrata, Euteleostomi:
Amphibla: Batrachia, Amara, Neobatzachia, Rameidea: Ramidae: Rama
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pantodon buchholtzi (Butterliyfish).
Eukaryota: Metazoa: Chordata: Graniato: Vertebrata: Euceleostomi:
Actinopterygii: Neopterygii: Teleostel: Osteoglossomorpha:
Osteoglossiformes: Pantodoniidae: Pantonon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74.78; Score 219.5; (B.13; Length 106; 49.48; Pred, No. 36.22; Liye 7; Mismatches 4; Indels 31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-1203577; pubMed-1130 771;
Al-Mahrouki A.A., Irwin D.M., raham L.C., Youson J.H.;
Al-Mahrouki A.A., Irwin D.M., raham L.C., Youson J.H.;
Molecular cloning of preproit ulin cDNAs from several
osteoglossomoths and a cyprinid ";
Mol. Cell. Endocrinol. 174:51-58(2001).
-!- SUBCELLULAR LOCATION: SECRETED (BY SIMILARITY).
-!- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
EMBL; AF199588 AAR28712.1; -.
HSSP; P01308; 1HIS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -:- SUBSCELLUIAR LOCATION: SECRETED (BY SIMILARITY).
-:- SIMILARITY: BELONGS TO THE INSULIN/IGE/FELAXIN FAMILY.
EMBL: AF227187; AAF87285.1; -:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   106 AA; 12183 MW; 3A870EEC70217F92 CRC64;
                                                                                                                                                                                                                  6] OCT-2006 (TrEMBLrel. 15, Created)
01-OCT-2006 (TrEMBLrel. 15, Last. sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last. annotation update)
Preproisation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-500-2001 (TrEMBLIEL, 17, Created)
01-500-2001 (TrEMBLIEL, 17, Last sequence update)
01-MAR-2003 (TrEMBLIEL, 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 FVNOHLOGSHLVEALYLVOSERGFFY1PKTR----
                                                                                                                                                                       106 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110 AA
                          85 PLOKRGIVEDCCASVCSLYQLEHYCN 110
--- RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  444744 : (114 | 1111)
84 KPGIVEOCCHNFCSLYDLENYCN 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -GIVEQCCTSICSLYOLENYCN 52
                                                                                                                                                                       :: ×4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro: IPR004825; Ins/IGF/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'KT'
                                                                                                                                                                                                                                                                                                                                                                                                                                         SECOFN'S FROM N.A.
MEDITINE-20362567; PubMod 10818274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE: PS00262; INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam, PF00049, Insulin, 1.
PRINTS, PR00277, INSULINB.
SMART: SM00078, 11GF, 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 49.4 Matches 41; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY:
                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSSP; P01315; 1SDB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                            NOB1_13x10 8404;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI Tax ID-8276;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Preproinsulin
<u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match
```

31

```
Overy Match
Best Local Similarity 45.1%
These 37; Conservalive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity 44.2
Matches 38; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
    01-DEC-2001 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
01-MAR-2003 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=112163;
                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                 NCBI_TaxID=72446;
                                                                     Preproinsulin.
                                                                                                                                                    Cyprinidae:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSTTE;
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             098TB0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q98TB0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
      ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
.~
                                                                                                                                                                                                                                                26 SOHLGGSHLVDALYMVCGEKGFFYQPKTKRDVDPLLGFLSPKSAQENEADHYPYKDQGDL 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27 UHLAGSHLVDALYLVGGPTGFFYNPKROVEPILGFLPPKSAUFTEVADFAFKDHAELLRK 86
                                                                                                                                                                                                          35; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Brachydanio rerio (Zebrafish) (Danio rerio,
Eukaryota: Metazoa: Chordata: Craniaia: Ver orata: Euteleostomi:
Actinopteryaii; Neopteryaii: Teleoster: Ostariophysi: Eyplimiformes:
Cyprinidae: Danio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             33: Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEGUENCE FROM N.A.
MEDILINE-99425190; PubMed-10495291;
Arquition F., Zecchin E., Bortolussi M.;
"Early appearance of pancreatic hormone expressing cells in the
zebrifish embryo.";
                                                                                                                     Score 201.5; DB 13; Length 110;
Pred. No. 8.9e-20;
8; Mismatches 5; Indels 35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 13; Length 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -: SUBCELLUIAR LOCATION: SECRETED (HY SIMILARITY).
-: SUBLIARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
EMHI, AJ237750: CAC20109.1; -.
HSSP: AJ237750: CAC20109.1; -.
HSSP: AJ237750: CAC20109.1; -.
HSSP: AJ247750: LA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                 Pfam: PF00049; Insulin; 1.
SMART; SM00078; IIGF; 1.
PKCSITE; PS00262: INSULIN: 1.
SEQUENCE IIO AA; 12324 MW; BDECCD659 972F06 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24 53 INSULIN B CHAIN.
86 108 INSULIN A CHAIN.
108 AA; 11964 MW: 3195289E72AD6025 CRC54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66.5%; Score 195.5; DB 13;
45.1%; Pred; No. 5.86-19;
Live 5; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       108 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                         IUE AA
                                                                                                                                                               8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL.
                                                                                                                                                                                                                                                                                                             10111111 | 1000 | 1010 1, 1010 1, 1000 86 KVKRSTVEQCOHHPONIEDIONYON (100
                                                                                                                                                                                                                                                                                         31 --- RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31 RGIVEQCCTSICSLYQLENYCN 52
InterPro; IPRO04825; Ins/IGF/relax
                                                                                                                          68.58;
43.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mech. Dev. 87:217-221(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE, PSHU262: INSULIN: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRINTS, PRO0277; :NSULINH, SMART; SMO0078; ::GF; 1.
                                                                                                                                             Best Local Similarity 43.5
Matthes 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   est teral similarity
atches 37: Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Insulin precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=7955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0902N4
0902N4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Signal.
Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           0900065
                                                                                                                                                                                                                                                                                                                                                                                                                                     090005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 7
0902N4
                                                                                                                                                                                                                                                                                                                                                                                             RESULT 6
DR
DR
DR
SO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       င်
                                                                                                                                                                                                                                           QQ
                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                     A PET THE PRESENT OF THE PROPERTY OF THE PROPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

```
----T 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                           Catla catla (catla).
Eukaryota: Metazoa: Chordata; Graniata; Vertebrata: Buteleostomi;
Actinopterygii; Meopterygii; Teleostei; Ostariophysi; Cypriniformes;
Cyprinidae: Catla.
                                                                                                                                                                                                                                                          Bhattacharya S., Roy S.S., Dasqupta S., Ravikumar L., Muxherjee M. Bandyopadnyaya L., Makabayasi K.; A new cell secreting insulfin.; Submitted (APR-2001) to the EMB./GeeHank/DDBS databases.
1. SUBCELLULAR IOCATION: SPCRETED (BY SIMILARITY).
2. SUBCELLULAR IOCATION: SPCRETED (BY SIMILARITY).
FMB., APRICE, MARKECUED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota: Metazoa; Phordata; Crániata; Vertebrata; Enteleostomi;
Actinopteryuii; Neopterygii; Teleostei; Osteoglossomorpha;
Osteoglossiformes; Notopteridae; Chitala.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66.5%; Score 195.5; DB 13; Length 108; 45.1%; Pred. No. 5.8e-19; 1.9e-5; Mismatches 7; Indels 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66.3%; Score 195; DB 13; Length 111; 44.2%; Pred. No. 7e-19; Live 3; Mismatches 9; Indels 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PS00262; INSULIN; 1.
108 AA: 11881 MM: D713026E22EF5D59 CRG64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE 111 AA; 12483 MW; 247CA4431376329F CRC64;
Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUN 2001 (TrEMBLIF), 17, Created)
01-JUN-2001 (TrEMBLIF), 17, Last sequence update)
01-MAR-2003 (TrEMBLIF), 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4 UHLCGSHLVEALYLVCGERGFFYTPK - - - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1:1 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97 RGIVEQCCHKPCSIFELONYCN 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Literary IPRO04825; Ins/INF/telax
Pram; PPO0494; Insulin: 1.
PRINTS; PRO0277; INSULINE.
SMART; SMO078; ILGE: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Preproinsulin (Fragment).
Chitala chitala (clown knifefish).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31 RGIVEOCCTSICSLYOLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Interpro; 1PR004825: Ins/IGF/relax
Pram; PF00049: Insulin; 1.
SMART: SM0078: IIGF; 1.
NON-TER III 111
```

us-09-423-100-5.rspt

```
Gnathonemus petersii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                      Overy Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query March
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NON_TER
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      098TA9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             O98TA9
    ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ें
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ÷
                     26 NQHLCGSHLVEALYLVGGERGFFYNPKMDKRDAEPLLGFI,SPKSGLENEVDEYPFKDQGD 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26 SOHLGGSHLVDALYMVCGEKGFFYQPKTKRDVLPPLLGFLSPKSAGENEADEYPYKINGGL 85
NOHLCGSHLVEALYLVCGERGFFYTPK------29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                     01-DEC-2601 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
01-DEC-2001 (Framer)
Preproinsuit: (Framer)
Hiodon alosoides (aldeye).
Hiodon alosoides (aldeye).
Actinopheryqii; Meditzer (fordera) (triint), SetSettati, Fite, EssteRel.
Actinopheryqii; Meopteryqii; Telesster, isteradossasiipia.
Osteodlossiformes Hiodontidae, Hiodon.
MCBI TaxID: 54904;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Preproinsulin (Fragment).
Osteoglossum birirrhosum (silver arawass).
Osteoglossum birirrhosum (silver arawass).
Actinopterydii. Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi:
Actinopterydii. Meopterygii; Teleostei: Osteoglossomorpha;
Osteoglossilormes, Osteoglossidae: Osteoglossum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65.8%; Score 194.5; DB-13; Longth 110;
42.4%; Pred. No. 1.16-16;
Live 7; Mismatche 7; Indels 35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. MEDIJNE-21203577; PubMed-11306171; MEDIJNE-21203577; PubMed-11306171; MAI-MAHTOUKI A.A., Irwin D.M., Graham L.C., Youson J.H.; Mai-evalar cloning of preproinsulin cDNAs from several osteoglossomorphs and a cyprinid.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            110 AA: 12343 MW; BDECCD7703E52E06 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       098.A.7:
01-JUN-2001 (TrEMBLEEL: 17, Created)
01-JUN-2001 (TrEMBLEEL: 17, Last sequence update)
01-MAR-2002 (TrEMBLEEL: 20, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  :::1 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3 NOHLCGSHLVEALYLVCGERGFFYTPKT - - -
                                                                                                                                  86 VKMKRGIVEQCCHRPCNIFDQNOYCN 111
                                                                                 30 ---TRGIVEQCCTSICSLYOLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   86 KVKRGIVEQCCHRPCNIFDLNQYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31 --- RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ptam: PF00049; Insulin; 1.
PRINTS; PR00277: INSULINB.
SMART: SMOUC78; IIGF; 1.
PROSITE: PS00262: INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
Matches 36; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SECUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                              Q$62Y1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    098TA7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 13
098TA7
                                                                                                                                                                                                   RESULI 9
Q902Y1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AND DESCRIPTION OF THE PROPERTY OF THE PROPERT
                                                                                    ô
                                                                                                                               q
                                                                                                                                                                                                                                                                      ें
```

```
;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..... 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 QHLCGSHLVEALFLVCGERGFFFNPDTKRDVDSLLGFLSPKSGPENFADEYRYKEGAEVK 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.7. SQRD YASHUMI ALYMATGARGETSPKSKEARPILLAFILSPKSOQENEVDEYPYKEQGEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      35; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota: Metazoa; Chordata; Graniata; Vertebrata; Euteleostomi; Actinopterygii; Meopterygii; Teleostei; Osteoglossomorpha; Osteoglossiformes; Mormyridae: Gnathonemus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65.18; Score 191.5; DR 18; Length 111; 41.28; Pred, No. 2.1e 18; tive 10; Mismatches 5; indels 35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13 13; Length 87;
Mol. Cell. Endocrinol. 174:51-58(2001).
-!- SUBCELLOLAR LCCATION: SECRETED (BY SIMILARITY).
-!- SUBCELLOLAR LCCATION: SECRETED (BY SIMILARITY).
-!- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
EMBL; AF195589. AAK28713.1; -.
HSSP; PO1315: 1MPJ.
InterPro; IPR064825; Ins/IGF/relax.
PRIMITE PR00277: INSULINE.
SWART: SM00078: IIGF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-21203577; PubMed=11306,71;
Al Mahrouki A.A. Irwin b.M., Graham L.C., Yosson J.H.;
Al Mahrouki A.A. Irwin b.M., Graham L.C., Yosson J.H.;
Molecular cloning of preproinsulin cDNAs from several osteoglossomorphs and a cyprinid. "
Mol. Cell. Endocrinol. 174:51-58(2001).
I. SUBCELLULAR LOCATION: SECHETED (BY SIMILARITY).
I. SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
EMBL: AP199587. AAK28711.1;
HSSP: P01308: 1HSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE 111 AA; 12491 MW; AC9819D254866D25 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      87 AA: 9874 MW; FF448ED35D2453F5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-JUN-2301 (TrEMBLrel, 17, Steated)
01-JUN-2301 (TrEMBLrel, 17, Last sequence apdate)
01-MAR-2003 (TrEMBLrel, 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65.8%; Score 187.5; DB 13; 42.9%; Pred. No. 5.8e-18; M. emallebes 8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B7 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4 NOTHER OBSERVENT PROPRESSED FOR THE STATE OF THE STATE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              87 KVKRGTVEQCCHRPCNIFIXLONYCN 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31 ---RGIVEQCCTSTCSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31 -- RGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64 VKRGIVEOCCHHPCNIFDLNOYCN 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro: IPR004825; Ins/IGF/relax. Plam; PF0049; Insulin; 1. SMART; SM00078; IlGF: 1. PR0SITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS00262: INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    est Local Similarity 41,29
atches 35; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Preproinsulin (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 42.9
Matches 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIM: NARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŝ
```

S

```
.... --T 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 111111111111111111 1111 111 111 112 QPENEVADFAFKDHAELIRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  33; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Proproints in (Fragment).
Ambioplites rupestris (Rock bass)
Eukaryota: Metazoa: Chordata; Craniata; Eutelrostemi;
Actinopteryqii: Neopteryqii: Telecstei; Iteleostei; Acanthomorpha: Acanthomorpha: Percomorpha: Percointery
                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Cranidia; Vertebrata; Euteleostomi;
Actinopterydii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
Catostomidae; Catostomus.
NCBL_Tax10=7971;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63.4%; Score 186.5; DB 13; Length 108; 43.9%; Pred. No. 9.8e-18; tive 4; Mismatches 9; Indels 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Al Mahrouki A.A., Irwin D.M., Youson J.H.;
"Mistoriar cloing of preproinsiling in the rock bass.";
Submitted (oCT-1999) to the EMBL/Genhank/Luch. databases.
Submitted (oCT-1999) to the EMBL/Genhank/Luch.
Submitted (oCT-1999) to the EMBL/Genhank/Luch.
Submitted (oCT-1995) to the EMBL/Genhank/Luch.
Submitted (oCT-1995) to the EMBL/Genhank/Luch.
Submitted (oCT-1995) to the EMBL/Genhank/Luch.
HSRP: PO1308: 11.PH.
                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.

ALIGNET STADS 77; PubMed-11306171;

ALIGNET STADS 77; PubMed-11306171;

ALIGNETONIS A. ITMAIN DAMA, Graham L.C., YOUSON J.H.,

"MCLECULAR CLONING OF proprostion obbas from several observation of a cypticion obbas from several observation of a cypticion observation of the second of a cypticion observation of a cypticion observation of the second observation of the second observation observati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   108 AA: 11873 MW; E426310696FBAFC8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    91 AA; 10100 MW; E86C8B256DC69D39 CRC64;
                                                 (TrEMBLrel. 17, Created)
(TrEMBLrel. 17, Last sequence update)
(TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01.JUN-2001 (TrEMBLrel. 17, Last seglen - pdate)
01.MAR-2003 (TrEMBLrel. 23, Last annota - updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VI AA
     108
                                                                                                                                      Preproinsuila (Fragment).
Catostomus commersoni (White sucker).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4 OHLICGSHLVEALYLVCGERGFFYTPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-JUN-2001 (TrEMBLrel, 17, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro: IPR004825; Ins/IGF/relax
Pfam: PF00049; Insulin; 1.
SMART: SMG0078; IIGF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RG:VEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro: IPR004825: Ins/IGF/relax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE: PS00262; INSULIN: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRUSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Plam; PF00049; Insulin; 1. SMART; SM00078; IIGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Centrarchidae: Ambloplites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 43.9
Matches 36; Conservative
  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCB1_Tax1D=109273;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPOUENCE PRIMINIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6
                                                    01 - JUN - 2001
01 - JUN - 2001
01 - MAR - 2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01 - JUN - 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SECUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ZH1850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 3.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   098TB2
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
```

```
.<del>.</del>
                                                                                                                                                                              62 ..... 58
                                                                                                                                                                                                                       Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             34; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
O'Abiain C., Tichy H., Klein
"Molecular evolution in higher primates; gene specific and organism specific characteristics.
Specific characteristics.
Submitted (MAR-2002) to the EMBL/GenBunk/LUBJ databases.
EMBL: AY092023; AAM7640.1: -...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
O'Buign C., Tichy H., Klein J.;
O'Buign C., Tichy H., Klein J.;
Molecular evolution in higher primates: gene specific and organism specific characterists.;
Submitted (MAR-2002) to the EMBL/GenBank/UUEJ databases.
EMBL: AY092024; AAM76641.1;
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Gorilla,
NCBI_TaxID=9593,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pongo pygmaeus (Orangutan).
Eukaryota: Metazoa: Chordata: Craniata: Verfebrata: Eufeleostomi:
Mammalia: Eutheria: Primates: Catarrhini: Hominidae: Pongo.
                                                                                                39;
63.1%; Score 165.5; DH 13; Length 91; 40.9%; Pred. No. 1.1e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 146; DB 6; Length 55;
Pred, No. 2e-12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 65;
                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; 1ndels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65 AA: 5920 MW: B772017FD8BCAHEA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B772017FD8BCABEA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ol-MAR-2003 (TrEMBLIEL, 23. Stouted)
GLMAR-2003 (TrEMBLIEL, 23. Last sequence update)
GLMAR-2003 (TrEMBLIEL, 23. Last ammotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAR-2603 (TrEMBLrel. 23, Created)
01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Insulin (Fragment).
                                                                                           .;
æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 146: DB 6;
                                                                                                                                                                         4 OHLCGSHLVEALYLVCGERGFFYTPK------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6.5 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                           5; Mismatches
                                                                                                                                                                                                                                                                                                                                                   TRGIVEQCCTSICSLYQLENYCN 52
                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                      64 MEMMVKRGIVEQCCHHPCNIFDLGRYCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      49.78:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6920 MM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   49.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Insulin (Fragment).
Gorilla gorilla (gorilla).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Overy Match
Best Local Similarity 4///
Fest Local Similarity 4///
For 31; Conservative
                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PREDIEM: NARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELITATINARY;
                                    Best Local Similarity
Matches 36: Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              53 IVEOC 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 IVEQC 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCB1_TaxID-9600;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              55
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SECUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QAHZH::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q8HZR1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q8H280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
OBHZ81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      08HS90
                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCOCCOSE PROPERTY REPORTS THE PROPERTY REPORTS THE PROPERTY PROPERTY REPORTS THE PROPERTY REPORTS THE PROPERTY PROPERTY REPORTS THE PROPERTY PROPERTY REPORTS THE PROPERTY PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       â
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1D DIT TO DE STAND TO DE STAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
```

Search completed: September 15, 2003, 12:03:30 Job time: 21.3154 secs

Page 1

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

- protein search, using sw model OM protein September 16, 2003, 12:31:20 ; Search time 31.642 Seconds Run on:

(without alignments) 536.746 Million cell updates/sec

US-09-423-100-6 Title: Perfect scorer

1 MFPTIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 107

Scoring table:

Sequence:

BLOSUM62 Gapop 10.0 , Gapext 0.5

1107863 seqs, 158726573 residues Searched:

Total number of hits satisfying chosen parameters:

1107863

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database :

A_Geneseq_19Jun03:*
1: /SIDS1/drodat=/~ 1.45

/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:* /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1984.DAT: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1982. /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1983. /SIDS1/gcgdata/geneseq/genes

/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1985_DAT:*/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1986_DAT:*/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1987 /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1987:*/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1987

/SIDS1/gcgdata/geneseg/genesegp-emb1/AA1989

/SIDS1/gcgdata/geneseq, qeneseqp-embl/AA1990.DAT: /SIDS1/gcgdata/geneseq, geneseqp-embl/AA1991.DAT: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1993.DAT: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1994.DAT: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1992

/SIDS1/gcgdata/geneseq/geneseqp-embl/Aa1999.DAT:* /SIDS1/gcgdata/geneseq/geneseqp-embl/Aa2000.DAT:* /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1996. /SIDS1/gcgdata/geneseq/geneseqp-embl/AA199 IDS1/gcgdata/geneseg/geneseqp-emb]

/SIDS1/gcgdata/geneseg/genesegp-embl/AA2003.DAT:*

/SIDS1/gcgdata/geneseg/genesegp-emb1/AA2001.DAT:*/SIDS1/gcgdata/geneseg/genesegp-emb1/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution. SUMMARIES

Description	hGH-mini-proinsuli	Chimeric protein,	SOD-proinsulin hyb	Human pro-insulin	SOD-proinsulin hyb	Mating factor alph	Human pro-insulin	Proinsulin sequenc	Human pro-insulin
CD	AAY42860	AAY42861	AAR98897	AAR68900	AAR98896	AAR71692	AAR68901	AAR78665	AAR68899
80	20	20	17	15	17	16	15	16	15
Length	107	150	116	63	117	137	26	26	96
Query Catch Length DB I	100.0	94.6	53.7	51.8	51.8	51.5	50.9	50.9	50.9
Score	587	555.5	315.5	304	304	302.5	299	299	299
Result No.	1	7	m	4	S	9	7	80	6

96 16 AAR78662 145 16 AAR71694 146 16 AAR71694 52 20 AAY42859 57 11 AAR04582 150 16 AAR79056 65 19 AAR879056 65 19 AAR87906 65 19 AAR87906 65 11 AAR9604 65 11 AAR9604 102 10 AAP94645 1123 19 AAW19240 1124 24 ABB8278 1124 24 ABB8278 1124 24 ABB8278 1124 19 AAW19242 1138 10 AAW19242 1138 11 AAW19242 1138 11 AAW19242 1140 16 AAR71690 53 1 AAW18007 117 11 AAW1807 110 16 AAR71690 60 3 AAP94648 110 10 AAP94648	Fusion protein con Mating factor alph	Mating factor alph	Human insulin prec	Proinsulin analogu	Glycosylphosphatid	Example of human t	Preproinsulin 1.	()	Modified pJB59 mod	Modified pJB59 mod	N-terminally exten	Amino acids encode	EEAEPK-MI3 insulin	DNA construct pAK7	pAK855 protein seq	Synthetic leader p	Insulin precursor	EEAEPK-MIS insulin	Amino acids encode	evisiae	factor	factor	Di-Arg-(B31-32)-Hu	Insl double-chain	Protein sequence o	A Bacillus pectate	Amino acids encode	. EEAEPK-MIl insulin	Human proinsulin a	Amino acids encode	Human preproinsuli	Signal-leader-p-in	Yeast signal/leade	Seguence encoded b	Signal peptide/lea
00000000000000000000000000000000000000								AAR87086	AAR96047	AAR96048	AAR88188	AAP94645			_	ABB8257	ABP55059		·				AAR65883	AAW18007	AAW78752		•		æ						AAR88179
	9 7 7	9	2	7	0	7		9	8	9	5	9 10	٦	٦	7	ď	4 24	7	Ä	1	-	7	3 1	3	7	N	٦								9 17
	00	0	Ö	6	49.1	48.9	48.9	48.9	48.5	48.5	48.5	48.5	48.5	48.5	48.5	•		48.5	48.4	48.4	48.4	48.4	48.3	48.3	48.3	48.3		48.0	48.0	48.0	48.0				
000000000000000000000000000000000000000	299 299	299	294	293	288.5	287	287	287	284.5	٠	284.5	284.5	284.5	284.5	284.5	284.5	284.5	•	284	284	284	m		283.5	283.5	283.5	282	282	281.5	281.5	281.5	281	281	8	8
00000000000000000000000000000000000000	10	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

RESULT 1

AAY42860 standard; protein; 107 AA.

AAY42860;

19-JAN-2000 (first entry)

hGH-mini-proinsulin chimeric protein.

Insulin; precursor; growth hormone; chaperone; intramolecular; folding; conformation; chimeric protein; cleavable; recombinant; production; yield.

Synthetic. Homo sapiens.

07-0CT-1999. BX F

98WO-CN00052. 31-MAR-1998;

(TONG-) TONGHUA GANTECH BIOTECHNOLOGY LID. 98WO-CN00052. 31-MAR-1998;

WPI; 1999-610839/52.

New chimeric proteins containing human growth hormone fragment, used

~

```
particularly for the production of human insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR98897 standard; Protein; 116
                                                                                                                                                                                                                                                                                                                                                                         94.68;
71.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    952A-0000142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94WO-US13268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94WO-US13268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hartman JR,
                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 107; Conserv
                                                                                                                                                                                                                                                                                                                                                Sequence 150 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      W09620724-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-DEC-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-DEC-1994:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-JAN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   03-FEB-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gorecki M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR98897;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAK98897
 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                            This sequence represents a chimeric protein, hGH-mini-proinsulin.
This chimeric protein contains an N-terminal fragment of human growth hormone (hGH) of the sequence given in AAV42855, a cleavable peptide
Linker (AAY42857), and a human insulin precursor comprising insulin
A and B chains (AAX42859). The hGH portion of the chimeric protein acts as an intramolecular chaperone (IMC) for the insulin precursor, canabing it to fold correctly. The cleavable peptide linker has a C-terminal Arg residue which enables the hGH portion of the chimeric protein to be removed after folding has taken place. Production of the combinant human insulin via an hGH-profusulin chimeric protein can provide human insulin with correctly linked cysteine bridges with fewer necessary procedural steps, and hence resulting in a higher yield of human insulin The IMC sequences not only protect insulin sequences from intracellular degradation by a microorganism host, but also promote the folding of the fused insulin precursor, facilitate the solubility of the fusion protein and decrease the intermolecular interactions among
                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                              the fusion proteins, thus allowing folding of the fused insulin precursor at commercially useful high concentrations. The procedural steps of cyanogen bromide cleavage, oxidative sulphitolysis and related
                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MFPTIPLSRLFDNAMLRAHRLHOLAFDIYQEFEEAYIPKEQKYSFLQNPLGTGPRFVNQH 60
                                                                                                                                                                                                                                                                                                                                                                                                                          1 MFPTIPLSRLFDNAMLRAHRLHQLAFDIYQEFEEAYIPKEQKYSFLONPLGTGPRFVNQH 60
                                                                                                                                                                                                                                                                                                      purification steps can thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic absorbent resins
                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New chimeric proteins containing human growth hormone fragment, used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              insulin; precursor; growth tormone; chaperone; intramolecular;
folding; conformation; chimeric protein; cleavable; recombinant;
                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 587; DB 20; Length 107; 100.0%; Pred. No. 4e-42; ive 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           particularly for the production of human insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAY42861 standard; protein; 150 AA
                         Claim 13; Page 30; 46pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98WO-CN00052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98WO-CN00052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chimeric protein, SEQ ID 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                    107; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1999-610839/52.
                                                                                                                                                                                                                                                                                                                                             107 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          production; yield.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          W09950302-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Synthetic
                                                                                                                                                                                                                                                                                                                                                Sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAY42861;
                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                     Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gan 2;
                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY42861
 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
This sequence represents a chimeric protein, which contains an N-terminal fragment of human growth hormone (hGH) of the sequence given in AAY42856, a cleavable petide linker (AAY42857), and a human insulin precursor comprisaing it to fold correctly. The hGH nortion of the chimeric protein acts as an intramolecular chaperone (lMC) for the chimeric protein acts as an intramolecular chaperone (lMC) for the chimeric protein to be removed after folding has taken place. Production of recombinant human insulin vith correctly linked cystoine bridges with fewer necessary procedural steps, and hence resulting in a higher protein can provide human insulin with correctly linked cystoine bridges with fewer necessary procedural steps, and hence resulting in a higher promote the folding of the fused insulin precursor, facilitate the solubility of the fusion protein and decrease the intermolecular interactions among the fusion proteins, thus allowing folding of the fusion proteins, thus allowing folding of the commercially useful high concentrations. The procedural steps of cyanogen bromide cleavage, oxidative sulphifoldysis and related purification steps can thus be eliminated, along with the use of hydrophobic absorbent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLGGSHLVEALYLVGGER 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MFPTIPLSRLFDNAMLRAHKLHQLAFDTYQEFEEAYIPKEQKYSFLCNP------ 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Insulin; proinsulin; hybrid polypeptide; protein folding;
enzymatic cleavage; cyanogen bromide; sulphitolysis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GFFYTPKTRGIVEQCCISICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 GFFYTPKTRGIVEOCCTSICSLYQLENYCN 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mendelovitz S;
Claim 14; Page 30-31; 46pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (BIOT-) BIO-TECHNOLOGY GENERAL CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOD-proinsulin hybrid polypeptide.
```

```
51 GIGPREVNQHLGGSHLVEALYLVCGERGFFYTPKIKGIVEOCCTSICSLXGLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A new method for the production of recombinant human insulin comprises folding a hybrid polypeptide comprising proinsulin under conditions that permit correct disulphide bond formation and subjecting that folded protein to enzymatic cleavage. The insulin produced can then be purified. This sequence is a SOD-insulin B chain-Lys-Arg-insulin A chain hybrid polypeptide and is encoded by the plasmid construct pBAST-R. Transformation of the proper E.coli
                                                                                                       with a mercaptor to provide 2-10 SH residues per Cys residue. In presence of a chaotropic agent and in aq. medium of pH 10-1; treating the proj. with 3-59 g hydrophobic adsorber residue per i admedium of pH 47, isolating the adsorbed resin and pro-insulin and desorbing the pro-insulin. This method produces pro-insulin with correctly bonded Cys bridges. Compared with known methods it involves fewer stages (esp. no sulphitolysis or cyanogen bromide cleavage) and overall losses during purification are reduced, i.e. the process is quicker and gives better yields. Sequences of insulin chain A, B and C are given in AAK68895-97. Sequences of pro-insulin 1-4 are given in AAK68898-01. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Recombinant insulin prodn. by correctly folding pro-insulin hybrid polypeptide - then enzymatic cleavage of folded product, does not require sulphite protection of SH nor use of cyanogen bromide
                                                                                           Pro-insulin is produced by treating recombinant precursor protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                          51.8%; Score 304; DB 15; Length 63, 94.7%; Pred. No. 1.3e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insulin proinsulin; hybrid polypeptide; protein folding; enzymat ? cleavage; cyanogen bromide; sulphitolysis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mendelovitz S;
                                           Disclosure: Page 11-12; 15pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example 1A; Figure 6; 69pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (BIOT-) BIO-TECHNOLOGY GENERAL CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR98896 standard; Protein; 117 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOD-proinsulin hybrid polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94WO-US13268.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94WO-US13268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            952A-0000142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity 94.7%
Les 54, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hartman JR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1996-333766/33
  hydrophobic resin
                                                                                                                                                                                                                                                                                                                                                                                                                 63 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; AAT34669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9620724-Al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-DEC-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-DEC-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10-JAN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             03-FEB-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gorecki M.
                                                                                                                                                                                                                                                                                                                                                                                                                 Sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR98896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR98896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                43 YSFLONPLGT --- GPREVNOHLCGSHLVEALYLVCGERGFFYTPKTRGTVEQCCTSICSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Caps
                                                                Recombinant insulin prodm. by correctly tolding pro-insulin hybrid polypeptide - then enzymatic cleavage of folded product, does not require sulphite protection of SH nor use of cyanogen bromide
                                                                                                                                                                                                                        comprises folding a hybrid polypeptide comprising proinsulin under conditions that permit correct dissulphide bond formation and subjecting that folded protein to enzymetic cleavage. The insulin produced can then be purified. This sequence is a SOD-insulin broduced can then be purified. This sequence is a SOD-insulin broduced can then be purified. This sequence is a SOD-insulin by the plasmid construct pDBAST-LAT. Transformation of the proper E.coli host cells with pDBAST-LAT results in the efficient expression of the proinsulin hybrid polypeptido. Mestal for human insulin production. The method produces recombinant human insulin identical to the natural hormone. Hazardous and cumbersome
                                                                                                                                                                                                                                                                                                                                                                                                                                                   procedures involving cyanogen bromide and sulphitolysis to protect SH groups are avoided since the entire hybrid polypeptide folds efficiently to the native structure even with the leader attached
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Prodm. of pro-insulin with correct dissulphide bridges - by treating recombinant precursor protein with mercaptan in alkali and in presence of chaotropic agent, then isolation on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 17; Length 116;
                                                                                                                                                                                                     A new method for the production of recombinant human insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pro-insulin: A-chain: B chain; C-chain; disulphide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sabel W;
                                                                                                                                                         Example 18; Figure 7; 69pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR68900 standard: peptide: 63 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gerl M, Ludwig J, Obermeier R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    53.78;
85.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 93EP-0118993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92DE-4240420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mercaptan; chaotropic agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity 85.3 tes 58; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100 YQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 109 YOLENYCN 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human pro-insulin 4.
1996-333766/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and Cys unprotected.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1994-177718/22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (FARH ) HOECHST AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      116 AA;
                     N-PSDB; AAT34670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25: MAR-2003
02-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02-DEC-1992;
```

Sedaence

Query Match Best Loca Matches

a ò EP600372-A1 08-JUN-1994

AAR68900;

AAR68900

Ö

Saps

Indels

```
137 AA
                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                25-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                   02-DEC-1992;
                                                                                                                                                                                                                                                                              25-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                          EP600372-A1.
                                                                                                                                                                                                                                                                                         02-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                             08-JUN-1594
                                                                                                                                                                                                                                                            AAR68901;
                                      Sequence
                                                        Query Match
                                                                                                                                                                                                                      RESULT 7
                                                                                                                                                                                                                                AAR68901
                                                                                                                                                                                                                                                   8×3333
                                                                                                               g
                                                                                                                                  ŝ
                                                                                                                                                     g
                                                                                                                                                                                         a
                                                                                                                                                                        ô
                                                                                                                                 Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAQ86425 encodes AAR71692 mating factor alpha 1-Insulin precursor Argal. Argals comperises the and A chains of a claimed human insulin derivative. In the final claimed compso. they are covalently connected via disulphide bonds between Cys residues A7/B7 and
host cells with pBAST-R results in the efficient expression of the projustin hybrid polypeptide, useful for human insulis production. The method produces recombinant human insulin identical to the natural hormone. Hazardous and cumbersone procedures involving cyanogen bromide and sulphitolysis to protect SH groups are avoided since the entire hybrid polypeptide folds efficiently to the native structure even with the leader attached and Cys ...protected.
                                                                                                                4
                                                                                           Ouery Match 51.8%; Score 304; DB 17; Length 117; Best Local Similarity 82.6%; Pred. No. 2.3e-18; Matches 57; Conservative 3; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                          precursor ArgB31; diabetes; Zinc ion complex; alpha 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  present as a Zinc ion and is rapid acting.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Jonassen I;
                                                                                                                                                                                                                                                                                                          Mating factor alpha 1-Insulin precursor ArgB31.
                                                                                                                                                                                                                                                                                                                                                                                             /label- mating factor alpha-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Havelund S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Acylated insulin deriv. which may be complex - is used to treat diabetes
                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 5; Page 78; 100pp; English.
                                                                                                                                                                                                                                         AAR71592 standard; Protein; 137 AA
                                                                                                                                                                                                                                                                                                                                                                                                                       117..137
/label- A-chain
                                                                                                                                                                                                                                                                                                                                                                                                                /label- B-chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94WO-DK00347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93DK - 0001044
94US - 0190829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Halstrom JB.
                                                                                                                                                                                                                                                                                         (tirst entry)
                                                                                                                                                                                                                                                                                                                                                                                                     86..116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (NOVO ) NOVO-NORDISK AS
                                                                                                                                                                                  109 LYQLENYCN 117
                                                                                                                                                                       99 LYQLENYCN 107
                                                                                                                                                                                                                                                                               (updated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1995-131314/17.
                                                                           117 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-PSDB; AAQ86425
                                                                                                                                                                                                                                                                                                                           Human insulin
mating factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Andersen AS,
                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                    W09507931-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-SEP-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17-SEP-1993;
02-FEB-1994;
                                                                                                                                                                                                                                                                              25-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Markussen J,
                                                                                                                                                                                                                                                                                        20-NOV-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23-MAR-1995
                                                                             Sednence
                                                                                                                                                                                                                                                            AAR71692;
                                                                                                                                                                                                                                                                                                                                                                                                     Peptide
                                                                                                                                                                                                                                                                                                                                                                                   Protein
                                                                                                                                                                                                                                                                                                                                                                                                                         Pept.ide
                                                                                                                                                                                                                      RESULT 6
                                                                                                                                                                                                                               AAR71692
                                                                                                                                                                                                                                                   8×8668888×8
                                                                                                                                   ò
                                                                                                                                                     9
```

```
48
                                                                                                                                                                                                                                                                                                                                              3 FPSI-----FTAVLFAASSALAAPVNTTTEDETAQIPAEAVIGYSDI.EGUFUVAVLUFSN 57
                                                                                                                                                                                                                                                                                                                                                                                                                               87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pro-insulin is produced by treating recombinant precursor protein with a mercaptan to provide 2-10 SH residues per Cys residue, in presence of a chaotropic agent and in aq. medium of pH 10-i, treating the prod. with 3-50 q hydrophobic adsorber resin per i aq. medium of pH 4-7, isolating he adsorbed resin and pro-insulin and desorbing the pro-insulin. His method produces pro-insulin and correctly bonded cys bridges. Compared with known methods it involves fewer stages (esp. no sulphitolysis or cyanogen bromide cleavage) and overall losses during purification are reduced, i.e. the process is quicker and gives better yields. Sequences of insulin chain A, B and C are given in AAR68895-97. Sequences of pro-insulin 14 are given in AAR68898-901.
                                                                                                                                                                                                                                                                                                                                                                                                                                  · · · · · - PREVNQHLCGSHLVEALYLVGGERGFFY; PKTRG
                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Prodm. of pro-insulin with correct disulphide bridges : hy treating recombinant precursor protein with mercaptam in alkaliand in presence of chaotropic agent, then isolation on
                                                                                                                                                                                                                                            39.
                                                                                                                                                                               DB 16; Length 137;
                                                                                                                                                                                                                                                                                                       2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQ--KYSFLQ--
A20/B19. The derivative, which may be present as a zinc ion complex, can be used as a fast action treatment for diabetes. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                               51.5%; Score 302.5; UB 16; Length
50.0%; Pred. No. 3.6e-18;
.ive 4; Mismatches 27; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pro-insulin: A-chain; B-chain; C-chain; disulphide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sabe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; Page 12; 15pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88 IVEOCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       118 IVEOCCTSICSLYQLENYCN 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             æ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Obernete.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mercaptan; chaotropic agent.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR68901 standard; peptide:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        92DE-4240420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93EP-0118994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (updated)
(first entry)
                                                                                                                                                                                                               Best Local Similarity 50.0°
Matches 70; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                     49 PLGTG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human pro-insulin 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1994-177718/22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gerl M, Ludwig J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (FARH ) HOECHST AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hydrophobic resin
```

Length 56;

S

Page

```
55 REVNQHICGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
bridges. Reaction with trypsin and opt. carboxypeptidase B yields correctly folded insulin. The insulin is isolated by absortion on
                                                                   Query Match 50.9°
Best Local Similarity 100.
Matches 53; Conservative
                       a hydrophobic resin.
                                             56 AA;
                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                25-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                      02-DEC-1992;
                                                                                                                                                                                                                                                25-MAR-2003
                                                                                                                                                                                                                                                            02-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                  EP600372-A1
                                                                                                                                                                                                                                                                                                                                                                                         08-JUN-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                              Sequence
                                                                                                                                                                                                                        AAR68899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerl M,
                                                                                                                                                                          RESULT 9
AAR68899
 200x8
                                                                                                                  ò
                                                                                                                                       Ωņ
                                                                                                                                                                                                                        ò
                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   to the general formula R2-R1-(B2-B39)-Y-X-G1y-(A2-A20)-R3 (II). In formula (II), X = Lys, Arg or a peptide of 2-13 amino acids contq. Lys or Arg at the N- and C-termini: Y = a natural amino acid: R1 - Phe or a bond; R2 = H, Arg, Lys, a peptide of 2-45 amino acid: R1 - Phe or a bond; R2 = H, Arg, Lys, a peptide of 2-45 amino acid: R1 - Arg, Arg or Lys at the N- and C-termini: Y = a natural amino acids contq. Arg or Lys at the N- and C-termini: A3 = a natural amino acid: (A2-A20) and (B2-B29) are the insulin A- and B-chain sequences from human or other insulin. The proinsulin molecule (produced in recombinant E.coli) is reacted with mercaptan at a ratio of 2-10 SH reasidues of mercaptan per Cys residue of proinsulin. The reaction takes place in the presence of a chaotropic auxiliary agent at pH 10-11 and results in proinsulin with correctly linked cystine
                                                         Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    presence
                                                                                                                                                                                                                                                          Proinsulis; post-translational modification; recombinant production: protein folding; conformation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Isolation of insulin that is correctly post-translationally processed - by reacting pro:insulin with a mercaptan in the presence of a chaotropic agent and purificn. after absorption to hydrophobic
                                                                              55 RFVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSL/YQLENYCN 167
                                                                                            4 REVNOHLGGSHLVEALYINGGENGEFFTPKTRGIVEQCCTSICSLYGLENYCN 56
                                                         ..
O
                                 Length 56;
                                                        Indels
                                                                                                                                                                                                                                                                                                                                                      /note= "a peptide of 4 amino acids"
                                                       0:
                                 Score 299; DB 15;
Pred. No. 3.2e-18;
                                                                                                                                                                                                                                                                                                                                                                            /label= R1-(B2-B29)·Y
/note= "human insulin B-chain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note- "human insulin A-chain"
                           50.9%; Scor.
100.0%; Pred. No. ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sabe: W;
                                                                                                                                                                                                                                                                                                                                                                                                                           36..56
/label- Gly-(A2-A20)-R3
                                                                                                                                                                                                                                                                                                                     Location/Qualitiers
                                                                                                                                                                AAR78665 standard; protein; 56 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example 2; Page 13; 16pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Obermeier R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      95EP-0101748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94DE-4405179
                                                                                                                                                                                                                                                                                                                                           /label- R2
                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                               /label x x
                                                        53; Conservative
                                                                                                                                                                                                                                     Proinsulin sequence 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gerl M, Ludwig J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1995-284754/38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (FARH ) HOECHST AG
                                              Similarity
             56 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      09-FEB-1995;
                                                                                                                                                                                                             03-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EP668292-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-AUG-1995
                                                                                                                                                                                                                                                                                               Synthetic
              Sequence
                                                                                                                                                                                      AAR78555
                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                    Pept ide
                                                                                                                                                                                                                                                                                                                                                                                                                           Peptide
                                                                                                                                                                                                                                                                                                                                 Region
                                                                                                                                                                                                                                                                                                                                                                                                     Region
                                                           Matches
                                                                                                                                                     AAR7856°
                                                                                                                                                                            ò
```

```
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fro insulin is produced 'v treating recombinant precursor protein with a mercaptan to pro. .e 2-10 SH residues per Cys residue, in presence of a chaotropic agent and in ag. medium of pH 10-11, creating the prod. with 3-50 g hydrophobic adsorber resin per 1 ag. medium of pH 4-7, isolating the adsorbed resin and pro-insulin and desorbing the pro-insulin. This method produces pro-insulin with correctly bonded Cys bridges. Compared with known methods it involves fewer stages (esp. no sulphitolysis or cyanogen bromide cleavage) and overall losses during purification are reduced, i.e. the process is quicker and gives better yields.

Sequences of insulin chain A, B and C are given in AAR68895-97.

Sequences of pro-insulin 14 are given in AAR68898-901.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                             Silpi
                                                                                                                               55 RPVNQHLCGSHLVEALYLA-GERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 1-7
                                                                                                                                                             4 REVNOHLOGSHLVEALYLVCGERGEFYTPKTRGIVEGCCTSTGSLYQLENYCN 5:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in alkalı
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    50.9%; Score 299; DB 15; Length 96; 100.0%; Pred. No. 5.le-18; Live 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Prodn. of pro-insulin with creet dissulphide bridges treating recombinant precise is protein with mercaptan and in presence of chactrapic agent, then isolation on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pro-insulin; A chain; B chain; G-chain; disulphide;
mercaptan; chaotropic agent.
                    Score 299; DB 16;
Pred. No. 3.2e-18;
50.98; Sco. 100.08; Pred. No. ... 0: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sabel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure: Page 11; 15pp: German.
                                                                                                                                                                                                                                                                                                                                 AAR68899 standard; peptide; 96 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ludwig J, Oberment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        93EP-0118993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92DE-4240420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                        (updated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human pro-insulin 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1994-177718/22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
Matches 53; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (FARH ) HOECHST AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hydrophobic resin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96 AA;
```

ø

ö

96

44

a

```
The present sequence is that of a fusion protein, produced in E.coli which contains an example of a proinsulin molecule corresp.

C thing general formula R2-R1-(82-829)-Y-X-G1y-(A2-A20)-R3 (II). In formula (II), X = Iys, Arg or a peptide of 2-35 amino acids contg.

Lys or Arg at the N- and C-termini; Y = a natural amino acids; R1 = C phe or a bond; R2 = H, Arg, Lys, a peptide of 2-35 amino acids contg.

C phe or a bond; R2 = H, Arg, Lys, a peptide of 2-45 amino acids

C ortor. Arg or Lys at the N- and C-termini; R3 = a natural amino acids

C ortor, Arg or Lys at the N- and C-termini; R3 = a natural amino

acid; (A2-A20) and (B2-B29) are the insulin A- and B-chain sequences

C from human or other insulin. The proinsulin molecule, released by

cyanogen bromide, is reacted with mercaptan at a ratio of 2-10 SH

residues of mercaptan per Cys residue of proinsulin. The reaction

C takes place in the presence of a chaotropic auxiliary agent at

pH 10-11 and results in proinsulin with correctly linked cystine

C bridges. Reaction with trypsin and opt. carboxypeptidase B yields

Correctly folded insulin. The insulin is isolated by absortion on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Isolation of insulin that is correctly post-translationally processed - by reacting pro:insulin with a mercaptan in the presence of a chaotropic agent and purificn. after absorption to hydrophobic
                                                                                                                                                               post-translational modification; recombinant production;
                                                                                                                                                                                                                                                                                              "a peptide of 4 amino acids"
                                                                                                                                                                                                                                                                                                                                                                                                                            /note- "human insulin A-chain"
                                                                                                                                                                                                                                                                                                                                           'note- "human insulin B-chain
                                                                                                                                Fusion protein contg. proinsulin sequence 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sabel W;
                                                                                                                                                                                                                                                                                                                                                                                                             /label- Gly-(A2-A20)-R3
                                                                                                                                                                                                                                                                                                                             R1-(B2-B29)-Y
                                                                                                                                                                                                                                               Location/Qualifiers
                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 2; Page 8; 16pp; German
                               AAR78662 standard; protein; 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Obermeier
                                                                                                                                                               Proinsulin: post-translationa protein folding; conformation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95EP-0101748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94DE-4405179
                                                                                                                                                                                                                                                              41..44
/label- R2
                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                              /label- x
                                                                                                                                                                                                                                                                                                                    45../4
/label= 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  hydrophobic resin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 1995-284754/38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ludwig J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (FARH ) HOECHST AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09-FEB-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8-FEB-1994;
                                                                                               03-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                               EP668292-A2
                                                                                                                                                                                                                Synthetic
                                                              AAR78662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Serl M,
                                                                                                                                                                                                                                                                                                                                                                                           Peptide
                                                                                                                                                                                                                                                                                                               Peptide
                                                                                                                                                                                                                                                              Region
                                                                                                                                                                                                                                                                                                                                                                Region
RESULT 10
AAR78662
```

```
Caps
           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAQ86429 encodes AAR71694 mating factor alpha 1-Insulin precursor ArgB1, ArgB31 N-terminal EEAEAEAR. The insulin precursor comprises the B and A chains of a claimed human insulin derivative preceded by the N-terminal amino acids EEAEAEAR. In the final claimed compsorthey are covalently connected via disulphide bonds between Cys residues A7/B7 and A20/B19. The derivative, which may be present as a zinc ion complex, can be used as a fast action treatment for
                                                                                                                                                                                                                                   ArqB31; diabetes; Zinc ion complex;
                                                                                                                                                                                                            precursor ArgBl, ArgB31 N-terminal.
                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             insulin deriv. When neary be present as a 2:nc ion \,\cdot\, is used to treat diabetes and is rapid acting.
           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       avelund S, Jonassen I;
ilarity 100.0%; Pred. No. 5.1e-18; Conservative () Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           50.9% Score 299% DB 16;
100.0% Pred. No. 7.3e-18;
tive : Mismatches 0;
                                                                                                                                                                                                                                                                                                        1.85
/label- mating factor alpha-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                86..93
/label- N-terminal peptide
                                                                                                                                                                                                                                             nal EEAEAEAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example 5; Pages 82-83; 100pp; English.
                                                                                                                                                                                                                                                                                             Cocation/Unalifiers
                                                                                                                        AAR71694 standard; Protein; 145 AA.
                                                                                                                                                                                                                                                                                                                                                                    /label- B-chain
125.145
/label- A-chain
                                                                                                                                                                                                            Mating factor alpha 1-Insul:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94WO-DK00347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93DK-00C1044
94US-0190829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Acylated insulin deriv. wh
                                                                                                                                                                                                                                    Human insulin precursor Arc
                                                                                                                                                                                                                                                mating factor alpha 1; N-te
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Halstrom JB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (NOVO ) NOVO-NORDISK AS
                                                                                                                                                                         (updated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1995-131314/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 53: Conserv
Best Local Similarity
Matches 53; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 145 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-PSDB; AAQ86429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Andersen AS,
Markussen J;
                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                    W09507931-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-SEP-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17-SEP-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         02-FEB-1994;
                                                                                                                                                                        25-MAR-2003
20-NOV-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                             23-MAR-1995
                                                                                                                                                 AAR71694;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complex
                                                                                                                                                                                                                                                                                               Key
Protein
                                                                                                                                                                                                                                                                                                                                  Peptide
                                                                                                                                                                                                                                                                                                                                                           Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                     ò
                                                            a
```

Length 96;

DB 16;

Score 299;

50.98;

Ouery Match

ö

~

```
Homo sapiens
                                                                                                                                                                  07-0CT-1999.
                                                      19-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                    AAY42859;
                                                                                                  folding;
                                                                                                                                                                                                                                         Gan 2;
RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 14
         AAY42859
                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAQ86432 encodes AAR71695 mating factor alpha 1-Insulin precursor Arghl, Argala N-terminal EEAEARAER. The insulin precursor comprises the B and A chains of a claimed human insulin derivative preceded by the N-terminal amino acids EEAEAEAER. In the final claimed compsn. they are covalently connected via disulphide bonds between Cys residues A7/P3 and A20/B19. The derivative, which may be present as a zinc ion complex, can be used as a fast action treatment for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94 RFWNOHLGGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               55 RFVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
Human insulin precursor ArgB1, ArgB31; diabetes; Zinc ion complex;
mating factor alpha 1; N-terminal EEAEAEAER.
                                                                                                                    Mating factor alpha 1-Insulin precursor ArgBl, ArgB31 N-terminal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Acylated insulin deriv. which may be present as a Zinc ion complex - is used to treat diabetes and is rapid acting.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                               Jonassen I;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7.4e-18;
hes 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                    /label- mating factor alpha-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          50.9%; Score 299; DB
100.0%; Pred. No. 7.4.
ive 0; Mismatches
                                                                                                                                                                                                               86..94
/label- N-terminal peptide
95..125
                                                                                                                                                                                                                                                                                                                                                                              Havelund S.
                                                                                                                                                                                   Location/Oualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 6; Page 85; 100pp; English.
                                                      AAR71695 standard; Protein; 146 AA
                                                                                                                                                                                                                                        /label- B-chain
                                                                                                                                                                                                                                                 126..146
/label- A-chain
                                                                                                                                                                                                                                                                                                               94WO-DK00347
                                                                                                                                                                                                                                                                                                                                 93DK-0001044
94US-0190829
                                                                                                                                                                                                                                                                                                                                                                              Halstrom JB,
                                                                                          (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                            (NOVO ) NOVO-NORDISK AS.
                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1995-131314/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
53; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         146 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB; AAQ86432
                                                                                                                                               mating factor
                                                                                                                                                                                                                                                                                                                                                                               Andersen AS,
                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                            W09507931-A1
                                                                                                                                                                                                                                                                                                               16-SEP-1994;
                                                                                                                                                                                                                                                                                                                                 17-SEP-1993;
02-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                         Markussen J;
                                                                                          25-MAR-2003
                                                                                                   20-NOV-1995
                                                                                                                                                                                                                                                                                              23-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                        AAR71695;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
         93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               diabetes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                             Protein
                                                                                                                                                                                                               Peptide
                                                                                                                                                                                                                                Peptide
                                                                                                                                                                                                                                                  Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loca
Matches
                                    RESULT 12
                                             AAR7169
                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
          a
```

```
And B chains. This insulin precursor is a component of the chineric proteins insulin precursor is a component of the chineric proteins high-mini-proinsulin (AAY42860) and the chimeric protein agreement of human growth hormone (hdh) and a cleavable optide linker (AAY42857). The hdH portion of the chimeric protein acts as an intranolecular chaperone (IMC) for the insulin precursor.

The chimeric protein chaperone (IMC) for the postide linker has a criemal and residue which enables the hdH portion of the chimeric protein to be removed after folding has taken place. Production of recombinant human insulin with correctly linked cysteine bridges with provide human insulin with correctly linked cysteine bridges with fewer necessary procedural steps, and hence resulting in a higher yield from intracellular degradation by a microordanism host intracellular degradation breewest the intermolecular interactions among the fusion protein and decrease the intermolecular interactions among the fusion proteins, thus allowing folding of the fused insulin precursor. The procedural steps of cyanogen bromide cleavage, oxidative sulphitotysis and related cyanogen bromide cleavage, oxidative sulphitotysis and related purification steps can thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic absorbent resins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This sequence represents a human insulin precursor comprising insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New chimeric proteins containing human growth hormone fragment, used particularly for the production of human insulin \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 FVNOHLCGSHLVEALYLVGERGFFYIPKTRGIVEQCCTSICSI,VQLENYCN 52
                                                                                                                                                                                                                                                                                                                   conformation; chimeric protein; cleavable; recombinant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .;
                                                                                                                                                                                                                                                                              Insulin; precursor; growth formone; chaperone; intramolecular;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 294; DB 20;
Pred. No. 7.8e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            50.1%; Sco.c.
160.0%; Pred. No. ...
... 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 12; Page 29-30; 46pp; English
                                                                                                                                                                                                               Human insulin precursor, SEO ID 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR04582 standard; protein; 57 AA.
AAY42859 standard; protein; 52 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98WO-CN00052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98WO-CN00052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity 160.0
Matches 52; Conservative
                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1999-610839/52.
                                                                                                                                                                                                                                                                                                                                                            production; yield
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              W09950302-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR04582
ID AAR0
XX
```

us-09-423-100-6.rag

```
Homo sapiens
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                     This sequence is joined to the C-terminus of an N-terminal fragment. comprising opt. modified tendamistate. This fusion protein may be converted into human insulin using known methods. The synthetic gene was prepared by the phosphoramidite method. See also AAQ04336.
                                                                                                                          /label-Lys residue linking insulin B chain to A chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GPI: glycosylphophatidylinositol; insulin; hormone; solubilization:
Saccharomyces cerevisiae; anchor; Gasl; plasmid pBY40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               55 RFVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                          Proinsulin analogue with a Lys residue I nking the A and B chains.
                                                                                                                                                                                                                                                                                                                          New insulin fusion proteins comprise pro-insulin analogue linked to tendamistate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Glycosylphosphatidylinositol-anchored human recombinant insulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                          49.9%; Score 293; DB 11; Length 57; 96.2%; Pred. No. 1e-17; Live 2; Mismatches 0; Indels
                                                            insulin fusion protein; pro-insulin analogue; tendamistate;
Lys-Lys bridge; ds
                                                                                                                                                                                                                                                                               Wallmeier H;
                                                                                                                                                                                                                                                                                                                                                                                                                  field.)
field.)
                                                                                                                                           /label- Insulin B chain
                                                                                                                                                           /label- Insulin A chain
                                                                                                                                                                                                                                                                                                                                                                                                                 on 25-MAR-2003 to correct PR
on 25-MAR-2003 to correct PI
                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR79056 standard; Protein; 160 AA
                                                                                                                                                                                                                                                                               Uhlmann E,
                                                                                                                                                                                                                                                                                                                                                     Disclosure: Page ?; ?pp; German.
                                                                                                                                                                                                                89EP-0120056
                                                                                                                                                                                                                                  88DE-3837273
                                                                                                                                                                                                                                            89DE-3927449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (updated)
(first entry)
                  (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  warthes 51; Conservative
                                                                                                                                                                                                                                                                                Koller KP, Riess GJ,
                                                                                                                                                                                                                                                                                                WPI; 1990-141149/19
                                                                                                                                                                                                                                                              (FARH ) HOECHST AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                           57 AA;
                                                                                                                                                                                                                                                                                                          N-PSDB; AAQ04335
                                                                                                                misc-difference
                                                                                                                                                                                                                 28-OCT-19 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-MAR-2003
24-JAN-1996
                          14-SEP-1990
                                                                                                                                                                                                                                   03-NOV-1988;
                                                                                                                                                                                                                                            19-AUG-1989;
                  25-MAR-2003
                                                                                                                                                                                               09-MAY-1990
                                                                                                                                                                               EP367163-A
                                                                                                                                                                                                                                                                                                                                                                                                                                             Seguence
                                                                                         synthetic
                                                                                                                                                                                                                                                                                                                                                                                                           See also
(Updated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR79056;
AAR04582;
                                                                                                                                                                                                                                                                                                                                                                                                                           (Updated
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                    Peptide
                                                                                                                                   Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
AAR79056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
```

```
Human recombinant insulin may be expressed in Saccharomyces cerevisiae following linkage of the gene to the glycosylphospatidylinositol anchor. This anchoring technique can provide for the release of the product in a highly specific and solective manner. In addition, the recombinant protein will contain an epitope which can be used in its final purification by immunoaffinity. The protein product can be released by e.g. nifrous deamination or treatment with neutral detergent.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55 RFVNQHLCGSHLVEALYLVCGERGFFYTPKT-RGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       43 RFVNQHLCGSHLVEALYLVCGERGFFYTPKTKRGIVEQCCTSICSLYQLENYCN 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Recombinant prodn. of proteins, e.g. insulin - by producing the protein with a glycosyl;phosphatidyl;inositol anchor followed by selective release
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              49.1%; Score 288.5; DB 16; Length 160; 98.1%; Pred. No. 6.1e-17; Live 0; Mismatches 0; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                     Amarai De Castilho Valavicius
                                                 /note- "anchor attachment site"
                                                                                                                                                                                                                                                                                                                                    (ESCO-) ESCOLA PAULISTA MEDICINA.
(FINE-) FINEP FINANCIACORA ESTUDOS & PROJETOS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Search completed: September 16, 2003, 12:38:26
Job time : 33.642 secs
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure, Fig 3, 51pp; English
                                                                                                                                                                                                                                                                               94BR-0000600
                                                                                                                                                                                                                        95WO-BR00010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                     Cardoso De Almeida ML, i
Comes De Amorim Filho A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1995-302720/39.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 53; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            160 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB; AAQ99460
     Key
Misc-difference
                                                                                                                                                                                                                                                                               17-FEB-1994;
                                                                                                              W09522614-A1
                                                                                                                                                                                                                        .6-FEB-1995;
                                                                                                                                                                   24 - AUG - 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seguence
```

ä

Applit Applit Applit Applit Applit

Sequence 8, A Sequence 6, A Sequence 3, A Sequence 3, A Sequence 1, A Sequence 63,

Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence 4. / Sequence 4. / Sequence 36,

Sednence

```
51.8%; Score 304; DB 1; Length 63; 94.7%; Pred. No. 7.3e-29; 1ve 0; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 6, Application US/OB160176A
Falent No. 547349
GENERAL INFORMATION
GENERAL INFORMATION
GENERAL INFORMATION
APPLICANT: Gerl, Martin
APPLICANT: Gerl, Martin
APPLICANT: Ludwig, Jurgen
APPLICANT: Ludwig, Jurgen
APPLICANT: Ludwig, Jurgen
APPLICANT: Sabel, Walter
ITILE OF INVENTION: Possessing Correctly Linked
ITILE OF INVENTION: Possessing Correctly Linked
ITILE OF INVENTION: Qystine Bridges
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: Kenneth A. Genoni, Esq.
STREET: Rt. 202-206 No. 5473049th/P.O. Box 2500
CITY: Somerville
STRATE: New Jersey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP: 08876-1258
COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETTE, 3.5 INCH, 1.44 MD STORAGE
US-08-400-256-15
US-08-468-6748-41
US-08-468-6748-45
US-08-468-6748-45
US-08-46-6748-45
US-08-46-646-3
US-08-46-646-3
US-08-46-646-3
US-08-46-646-3
US-08-46-641-3
US-09-23-981-3
US-09-23-986-3
US-09-23-617-3
US-09-23-617-3
US-09-134-836-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: 1.4m 300
COMPUTER: 1.4m 300
COMPUTER: 4.4m 300
COMPUTER: 4.4m 300
COMPUTER: 4.4m 300
COMPUTER: 4.4m 300
COMPUTER: 6.4m 300
COMPUTER: 6.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 51.8
Best Local Similarity 94.7
Matches 54; Conservative
     COMPUTER: IBM 386
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 1
US-08-160-376A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-160-376A-6
                                                      280.5
280.5
280.5
280.5
280.5
279.5
279.5
278.5
278.5
278.5
     Sequence 39, Appl
Sequence 7, Appl 1
Sequence 7, Appl 1
Sequence 5, Appl 1
Sequence 6, Appl 1
Sequence 48, Appl 1
Sequence 48, Appl 1
Sequence 47, Appl 1
Sequence 7, Appl 1
Sequence 7, Appl 1
Sequence 7, Appl 1
Sequence 71, Appl 1
Sequence 73, Appl 1
Sequence 73, Appl 1
Sequence 73, Appl 1
Sequence 74, Appl 1
Sequence 74, Appl 1
Sequence 74, Appl 1
                                                                                                                                                                                September 16, 2003, 12:37:10; Search time 17.07 Seconds (without alignments) 265.217 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being primited, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                        1 MFPT [PLSRLFDNAMLRAHR.....IVEQCCTS108LYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19sued_Patents_AA:*
.: /cgn2_fptodata1/laa/5A_COMB.pep:*
.: /cgn2_f/ptodata1/laa/5B_COMB.pep:*
.: /cgn2_6/ptodata1/laa/6A_COMB.pep:*
.: /cgn2_f/ptodata1/laa/6B_COMB.pep:*
.: /cgn2_f/ptodata1/laa/PCTUS_COMB.pep:*
.: /cgn2_f/ptodata1/laa/pcTUS_COMB.pep:*
.: /cgn2_f/ptodata1/laa/backfiles1.pep:*
                               GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           $ 68.400.256.39
$ 68.291.0608.5
$ 68.291.0608.5
$ 68.291.0608.5
$ 68.291.0608.5
$ 68.380.487.8
$ 68.380.256.45
$ 68.380.256.48
$ 68.380.256.48
$ 68.380.256.48
$ 68.380.256.48
$ 68.380.256.48
$ 68.975.365.48
$ 68.975.365.48
$ 68.975.365.48
$ 68.975.365.48
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.574.7
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
$ 68.980.56.38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      otal number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     328717 seqs, 42310858 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ost-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                   - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                           BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length: 0
length: 2000000000
                                                                                                                                                                                                                                                                               US-09-423-100-6
587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               inimum DB seq
aximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              302.5
299.5
299.5
299.5
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
299.6
                                                                                                                                                                                                                                                                                             tle:
rfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                                                                                                                                                                              oring table:
                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     earched:
                                                                                                                                                                                                                                                                                                                                        dneuce:
                                                                                                                                                                                            : uo :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Result
No.
```

ö

Gaps

.; 0

```
linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-291-060B-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-975-365-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ें
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: No. 57504970 No. 5750497disk of No. 5750497th America, Inc. STREET: 405 Lexington Avenue, 64th Floor CITY: New York STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 FPTIPLSRLFDNAMLRAHRLHQUAFDTYQEFEEAYIPKEQ--KYSFLQ------N 4H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  49 PLGTG-------PRFVNQHLCGSHLVEALYLVGGERGFFYTPKTHG 87
51 GTGPREVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 1U7
                                    1 HITTELLE H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sacto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1; Length 137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PREEMIN RELEASE #1.0, VERSION #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/400.256
FILING DATE: 03-MAR-1995
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                vry Match 51.5%; Score 302.5; DB 1 t Local Similarity 50.0%; Pred. No. 2.9e-28; ches 70; Conservative 4; Mismatches 27
                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: Halestrom, John
APPLICANT: JONASSEN, JOHN
APPLICANT: JONASSEN, JD
APPLICANT: MACETSEN, ASSER SlOth
APPLICANT: MATKUSSEN, JAN
TITLE OF INVENTION: ACYLATED INSULIN
NUMBER OF SEQUENCES: 49
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STATE: New York COUNTRY: United States of America 21P: 10174-6401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 975-365-39
ence 39, Application US/08975365
nt No. 6011007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88 IVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      118 IVEQCCTSICSLYQLENYCN 137
                                                                                                                                                                                                        SULT 2
-08-400-256-39
Sequence 39, Application US/08400256
Patent No. 5750497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Lambiris, Elias J. REGISTRATION NUMBER: 33,728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE/POCKET NUMBER: 39
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-867-0123
TELEFAX: 212-878-9655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFRA: 212-8/8-7003
NFORMATION FOR SEQ ID NO: 39:
SEQUENCE CHARACTERISTICS:
LENGTH: 137 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PPLICANT: Havelund, Svend
PPLICANT: Halstrom, John
PPLICANT: Jonassen, Ib
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
```

```
ADDRESSEE: No. 60110070 No. 6011007disk of No. 6011007th America. Inc. STREET: 405 Lexington Avenue, 64:h Floor CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 5, Application US/08291060B
Patent No. 5728543
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Dorschut, Michael
APPLICANT: Marquardt, Rudiger
APPLICANT: Marquardt, Rudiger
APPLICANT: Meiwes, Johannes
TITLE OF INVENTION: An Enzymatic Process for the
TITLE OF INVENTION: Conversion of Preprolnsulins Into Insulins
NUMBER OF SEQUENCE: 5
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 51.5%; Score 102.5; DB 3; Length 137; Best Local Similarity 50.0%; Prod. No. 2.9e-28; Matches 70; Conservative 4; Mismatches 27; Indels 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 FPTIPLSRLFUNAMLRAHRLHCLAFDTYQEFEEAYIPKEO--KYSFLO-
                                                                                                                                                                                                 STATE: New York
COUNTRY: United States of America
21P: 10174-6401
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IRM PC COMPALIDLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentln Release !.O. Version #1.25
CURRENT APPLICATION DATE:
APPLICATION NUMBER: US/08/y...365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Finnegan, Henderson, Farabow, Garrett ADDRESSEE: Dunner, L.L.P. STREET: 1300 I Street, N.W. CITY: Washington STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASS FICATION: 514
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
FILING DATE: 03 MAR-1995
ATTORNEY/AGENT INFORMATION:
NAME: Lambiris Filas J.
REGISTRATION NUMBER: 33,728
FEFFENCE/COCKFT NUMBER: 34,728
TELEPRA: 212-867-0123
TELEPRA: 212-867-0123
INFORMATION FOR SEQ ID NO: 39:
SEQUENCE CHARACIERISTICS:
APPLICANT: Andersen, Asser Sloth
APPLICANT: Markussen, Jan
TITLE OF INVENTION: ACYLATE: NSULIN
UNMER OF SEQUENCES: 49
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88 IVEQCOTSICSLYQLENYON 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   118 IVEQCCISICSLYQUENYON 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 137 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: protein
```

```
STATE: D.C. COUNTRY: United States of America 21P: 20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION
NAME: EINAUDI, CAROLI P.
REGISTRATION NUMBER: 32 220
REFERENCE/DOCKET NUMBER: 024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: 1300 I Street, N.W. CITY: Washington STATE: D.C.
(908) 231-4079
                TELEFAX: (908) 231-2255
INFORMATION FOR SEQ ID NO: 7
SEQUENCE CHARACTERISTICS:
LENGTH: 56 Amino Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           202-408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 202-408-4400
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 56 amino acids
                                                                                                   TYPE: Amino Acid (AA) TOPOLOGY: not relevant
                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
CLASSIFICATION: 530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear
                                                                                                                                                                               Query Match
Best Local Similarity
Matches 53; Conserv
  TELEPHONE:
                                                                                                                    TOPOLOGY:
US-08-160-376A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-389-487-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 7
                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 299.5; DB 1; Length 66; Pred. No. 2.6e-28; 1; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Ludwig, Jurgen
APPLICANT: Sabel, Walter
TITLE OF INVENTION: Process For Obtaining Proinsulin
TITLE OF INVENTION: Possessing Correctly Linked
TITLE OF INVENTION: Cystine Bridges
TITLE OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSE: Renneth A. Genoni, Esq.
STREET: Rt. 202-206 No. 5473049th/P.O. Box 2500
CITY: Somerville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP: 08876-1258
COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETTE, 3.5 INCH, 1.44 MD STORAGE COMPUTER: IBM 386
OPERATING SYSTEM: WINDOWS 3.1
SOFTWARE: WORDPERFECT 5.1
CURRENT APPLICATION DATA:
                                                                                                                    SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: Einaudi, Carol P.
REGISTRATION NUMBER: 32,20
REFERENCE/DOCKET NUMBER: 02481.1105-02000
TELECOMUNICATION INFORMATION:
TELEPHONE: (202) 408-4366
INFORMATION FOR SEQ ID NO: 5: SEQUENCE CHARACTERISTICS:
LENGTH: 66 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Barbara V. Maurer, Esq.
REGISTRATION UNDBER: 31,287
REFERENCE/DOCKET UNDBER: 40E 92/F 384
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: GE P 4240420.7
FILING DATE: December 2, 1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                      APPLICATION NUMBER: US/08/291,060B
FILING DATE: 08-AUG-1994
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/08/160,376A FILING DATE: December 1, 1993 CLASSIFICATION: 530
                ZIP: 20005-3315
COMPUTER REAABLE FORM:
CMEDIUM TYPE: Floppy disk
CMEDIUR: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 7, Application US/08160376A Patent No. 5473049 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Obermeier, Ranier APPLICANT: Gerl, Martin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             51.0%;
91.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: linear
MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : New Jersey
RY: U.S.A.
08876-1258
                                                                                                                                                                                                                                                                                                                                                                                                                           amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
hes 55; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-291-060B-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-160-376A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CIIY: S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                      55 REVNQHLCGSHLVEALFFLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55 REVNQHLCGSHLVEAL : LVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                       56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56
                                                                                                                                 4 REVNOHLCGSHLVBALYIV SERGFEYTPKTRGIVEQCCTSICSLYQLENYCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4 RFVNQHLCGSHLVEALYL GERGFFYTPKTRGIVEQCCTSICSLYQLENYCN
                                                      .;
o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ..
0
                                                                                                                                                                                                                           RESULT 6
US-08-399-487-11

Sequence 11, Application US/0; 1487

Sequence 11, Application US/0; 1487

Patent No. 5663291

GENERAL INFORMATION:
APPLICANT: Obermeter, Rainer
APPLICANT: Ludwig, Jurgen
APPLICANT: Ludwig, Jurgen
APPLICANT: Sabel, Walter
TITLE OF INVENTION: Process for Obtaining Insulin Having
TITLE OF INVENTION: Correctly Linked Cystine Bridges
NUMBER OS ESQUENCES: 12

CORRESPONDENCE ADDRESSE:
ADDRESSEE: Finnegan, Henderson, Farabow, Garrett 6

ADDRESSEE: Dunner
Length 56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/Us/389,487
50.9%, Score 299; DB 1; I
100.0%; Pred. No. 2.4e-28;
tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 50.9%; Score 299; DB 1; 1
Best Local Similarity 100.0%; Pred. No. 2.4e-28;
Matches 53; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02481.1424-00000
```

```
405 Lexington Avenue, 64th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Havelund; Svend
APPLICANT: Havelund; Svend
APPLICANT: Halstrom, John
APPLICANT: Jonassen, 1b
APPLICANT: Andersen, Asser Sloth
APPLICANT: Andersen, Asser Sloth
APPLICANT: Arkussen, Jan
TITLE OF INVENTION: ACYLATED INSULIN
NOMBER OF SEQUENCES: 49
NOMBER OF SEQUENCES: A9
STREET: No. 57504970 No. 5750497di:
STREET: A05 Lexington Avenue, 64th File
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3985.220-US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 45, Application US/08 00256 Patent No. 5750497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Lambiris, Elias J.
REGISTRATION NUMBER: 33,728
REFERENCE/DOCKET NUMBER: 396
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-867-0121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 145 amino acids
                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 202-408-4400
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 96 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: 212-878-9655
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-389-487-8
COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: amino acid
STRANDEDNESS: si
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-400-256-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   55 RFVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44 REVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Squence Application US/08389487

Fatent No. 5663291

GENERAL INFORMATION:
APPLICANT: Obermeler, Rainer
APPLICANT: Gerl, Martin
APPLICANT: Sabel, Walter
APPLICANT: Street, N.W.
APPLICANT: Applicant Street, N.W.
APPLICANT: APPLICANT: Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ouery Match 50.9%; Score 299; DB 1; Length 96; Best Local Similarity 100.0%; Pred. No. 4.8e-28; Matches 53; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                        TITLE OF INVENTION: Process For Obtaining Proinsulin TITLE OF INVENTION: Possessing Correctly Linked TITLE OF INVENTION: Cystine Bridges
TYREE OF SEQUENCES: 7
CORRESPONDENCE ADDRESS: ADDRESSE: Reneth A. Genoni, Esq.
STREET: Rt. 202-206 No. 5473049th/P.O. Box 2500 CITY: Somerville
                                                                                                                                                                                                                                                                                                                                                                                                                       ZIP: 08876-1258
COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETTE, 3.5 INCH, 1.44 Mb STORAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: GE P 4240420.7
FILING DATE: December 2, 1992
ATTORNEY/AGENT INFORMATION:
NAME: BATBATA V. MAURET: ESQ.
REGISTRATION NUMBER: 31,287
REFERENCE/COCKET NUMBER: HOE 92/F 384
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM 3Bb
OPERATING SYSTEM: WINDOWS 3.1
SOFTWARE: WORDPERFECT 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/160,376A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   United States of America
Sequence 5, Application US/08160376A Patent No. 5473049
                                                                      APPLICANT: Obermeier, Ranier
APPLICANT: Gerl, Martin
APPLICANT: Ludwig, Jurgen
APPLICANT: Sabel, Walter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: (908) 231-4079
TELEFAX: (908) 231-2255
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1: 96 Amino Acids
   Amino Acid (AA)
   GY: not relevant
                                                                                                                                                                                                                                                                                                                                                                             New Jersey
: U.S.A.
                                               GENERAL INFORMATION:
APPLICANT: Oberme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-160-376A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-389-487-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 8
```

```
No. 57504970 No. 5750497disk of No. 5750497th America, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55 REVNOHLCGSHLVEALYL) JERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44 REVNOHLGGSHLVEALYLV GERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 50.9%; Score 299; DB 1; Length 96; Best Local Similarity 100.0%; Pred. No. 4.8e-28; Matches 53; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTEY: United States of America
ZIP: 10174-6401
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPA:DLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/400,256
FILING DATE: 03-MAR.1995
CLASSIFICATION: 514
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/389,487
                                                                                   FILING DATE:
CLASSIFICATION: 530
ATTORNEYAGENT INFORMATION:
NAME: Einaudi, Carol P.
REGISTRATION NUMBER: 32,220
REFERENCE/DOCKET NUMBER: 02481.1424-00000
TELECPHONE: 202-408-4000
TELEFRONE: 202-408-4000
```

.; 0

```
RESULT 12
US-08-975-365-48
                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: No. 60110070 No. 6011007disk of No. 6011007th America, Inc. STREET: 405 Lexington Avenue, 64th Floor CITY: New York STATE: New York COUNTRY: United States of America ZIP: 10174-6401 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER: IBM PC COMPATIBLE OPERATION SYSTEM: PC COMPUTER: DASAS-DOS COUNTRY: United States OF America MEDIUM TYPE: Floppy disk COMPUTER: IBM PC COMPATIBLE OPERATION SYSTEM: PC LOSS/MS-DOS COUNTRY DESCRIPTION SYST
                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                   55 RFVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                              55 RFVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93 RFVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 145
                                                                                                                                                                                                                                                                           .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 145;
                                                                                                                                                                                          Length 145;
                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Release 11.0, Version 11.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/975,365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match 50.9%; Score 299; DB 3; I
Best Local Similarity 100.0%; Pred. No. 7.9e-28;
Matches 53; Conservative 0; Mismatches 0;
                                                                                                                                                                                  Query Match 50.9%; Score 299; DB 1:
Best Local Similarity 100.0%; Pred. No. 7.9e-28;
Matches 53; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Havelund, Svend
APPLICANT: Halstrom, John
APPLICANT: Johnssen, John
APPLICANT: Johnssen, Ib
APPLICANT: Markussen, Jan
APPLICAN*** Markussen, Jan
APPLICAN*** Markussen, Jan
APPLICAN*** AVELATED INSULIN
NUMBER OF SEQUENCES: 49
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3985.220-US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US 08/400,256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 45, Application US/08975365
Patent No. 6011007
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 48, Application US/08400256
Patent No. 5750497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION: 514
PRIOR APPLICATION DATA:
PAPLICATION DATE: US 08/400
FILING DATE: 03-MAR-1995
ATTORNEY/AGENT INFORMATION:
NAME: Lambiris, Elias J.
REGISTRATION NUMBER: 33,728
REFERENCE/OCKET NUMBER: 3985
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-867-0123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  145 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       212-878-9655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO:
                     ; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-400-256-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: protein
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-400-256-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-975-365-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-975-365-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

```
0
APPLICANT: Havelund, Svend
APPLICANT: Halstrom, John
APPLICANT: Halstrom, John
APPLICANT: Jonassen, Ib
APPLICANT: Andersen, Asser Sloth
APPLICANT: Markussen, Jan
TITLE OF INVENTION: ACLATED INSULIN
NUMBER OF SEQUENCES: 49
CORRESPONDENCE ADDRESS:
ADDRESSEE: No. 57504970 No. 5750497disk of No. 5750497th America, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No. 6011007o No. 6011007disk of No. 6011007th America, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94 RFVNQHIGGSHLVEALYLVGGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55 REVNOHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 299; DB 1; Length 146; Pred. No. 8e-28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/400,256
FILING DATE: 03 MAR-1995
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match 80.9%; Score 299; DB Best Local Similarity 100.0% Pred. No. 8e-7 Matches 53; Conservative 0; Mismatches
                                                                                                                                                                                                                                    405 Lexington Avenue, 64th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: 405 Lexington Avenue, 64th Floor CIT: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3985.220-08
                                                                                                                                                                                                                                                                                  STATE: New York
COUNTRY: United States of America
ZIP: 10174 6401
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Markussen, Jan
TITLE OF INVENTION: ACYLATED INSULIN
NUMBER OF SEQUENCES: 49
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: United States (i America ZIP: 10174-6401 COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Jonassen, Ib
APPLICANT: Andersen, Asser Sloth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 48, Application US/08975365
Patent No. 6011007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Lambiris, Elias J. REGISTRATION NUMBER: 33 728 REFERENCE/DOCKET NUMBER: 39 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: 48:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: Havelund, Svend
APPLICANT: Halstrom, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 146 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE: 212-867-012 TELEFAX: 212-878-9655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-400-256-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 03
CLASSIFICATION:
                                                                                                                                                                                                                                                               New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
```

9

```
55 REVNOHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S KFVNQHLCGSHLVEALYLVCGERGFFYTPKTKGIVEQCCTSICSLYQLENYCN 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRECT PFELICATION NUMBER: US/08/900,574
FILING DATE: July 24, 1997
CLASSIPICATION: 514
FILING DATE: July 24, 1997
CLASSIPICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: German Application No. 6221837 19630242.0
FILING DATE: July 26, 1996
ATTORNEY/AGENT INFORMATION:
NAME: Carol P. Einaudi
REGISTATION NUMBER: 32,220
REFERENCE/DOCKET NUMBER: 02481.1499-00000
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICAT: Ertl. Johann
APPLICAT: Ertl. Johann
APPLICAT: Ettl. Johann
APPLICANT: Geisen, Karl
APPLICANT: Seisen, Karl
APLICANT: Seisen, Karl
APLICANT: Seisen, Barl
TITLE OF INVENTION: Insuli, derivatives with increased zinc
TITLE OF INVENTION: binding
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25 (EPO)
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Finnegan, Henderson, Farabow, Garrett, ADDRESSEE: & Dunner, L.i.P. STREET: 1300 I Street, N.W. STREET: 1300 I Street, N.W. STATE: District of Columbia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 293; DB 1; Lu
Pred. No. 1.3e-27;
2; Mismatches 0;
                                                                                                                                                                                                                                                                 NAME: Kirschner Michael K.
REGISTRATION NUMBER: 34,851
REFERENCE/DOCKET NUMBER: 02481-0593-02000
TELECOMUNICATION INFORMATION:
TELEPHONE: 202-408-4000
TELEFAX: 202-408-4400
                                                              FILING DATE: 03 NOV-988
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: DE P 39 27 449.7
FILING DATE: 19-AUG-1989
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
FILING DATE: 21-APR-1990
ATTORNEY/AGENT INFORMATION:
                                              DE P 38 37 273.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 3, Application US/08900574 Patent No. 6221837 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 202-408-4400
INFORMATION FOR SEQ ID NO: 44:
SEQUENCE CHARACTERISTICS:
LENGTH: 57 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 49.9%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (202) 408-4000
(202) 408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 96.28
Matches 51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY: unknown
MOLECULE TYPE: peptide
US-08-030-731A-44
                    PRIOR APPLICATION DATA:
                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      U.S.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE:
TELEFAX: (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
US-08-900-574-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94 RFVNQHLCGSHLVEALYLVCGFRGFFYTPKTRGIVEQCCTSICSLYQLENYCN 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 55 RFVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-030-731A-44

Sequence 44, Application US/08030731A

Sequence 44, Application US/08030731A

Sequence 46. Application US/08030731A

Sequence 46. Application: Riagon US/08030731A

APPLICANT: Koller, Klaus-Peter
APPLICANT: Wilmenton, Eugen
APPLICANT: Wallmeler, Holger
TITLE OF INVENTION: Processes for the Preparation of Forcign TITLE OF INVENTION: Proteins in Streptomycetes

NUMBER OF SEQUENCES: 48

CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Finnegan, Henderson, Farabow, Garrett & ADDRESSEE: Dunner STREET: 1300 I Street, N.W., Suite 700 STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/030,731A
FILIGN DATE: 12-MAR-1993
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 50.9%; Score 299; DB 3; Best Local Similarity 100.0%; Pred. No. 8e-28; Matches 53; Conservative 0; Mismatches 0
                                                                                                                                                                                                                     3985.220-US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DE P 37 14 866.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/189,840
FILING DATE: 03-MAY-1988
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/430,622
FILING DATE: 01-NOV-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/687,610
FILING DATE: 19-APR-1991
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 07/735,757
FILING DATE: 29-JUL-1991
PRIOR APPLICATION DATE:
APPLICATION NUMBER: DE P 37 14 86
APPLICATION NUMBER: US/08/975,365
                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/400,256
FILING DATE: 03-MAR-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                            REGISTRATION NUMBER: 33.728
REGISTRATION NUMBER: 33.728
REFRENCE/COCKET NUMBER: 3985.
TELECOMMUNICATION INFORMATION:
TELEFAK: 212.867-0123
INFORMATION FOR SEQ ID NO: 48: SEQUENCE CHARACTERISTICS:
LENGTH: 146 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: protein US-08-975-365-48
                  FILING DATE:
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
```

ô

Gaps

.;

```
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
COMPUTER: TO COMPATIBLE
COMPUTER: PATENTIN RELEASE #1.0, Version #1.25 (EPO)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/970,574
FILIAG DATE: July 24, 1997
CLASSIFICATION DATA:
APPLICATION NUMBER: German Application No. 6221837 19630242.0
FILIAG DATE: July 26, 1996
ATTORNEY/AGENT INFORMATION:
NAME: Carol P. Einaudi
REGISTRATION NUMBER: 32,220
REFERENCE/DOCKET NUMBER: 02481.1499-00000
TELECOMMUNICATION INFORMATION:
TELEPHONE: (2002) 4.048-4.0000
                                                                                                                                                                                                                                                                                                                                                                                        2; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: Ertl. Johann
APPLICANT: Habermann, Paul
APPLICANT: Gelsen, Karl
APPLICANT: Gelsen, Karl
APPLICANT: Seipke, Gerhard
ITILE OF INVENTION: Insulin derivatives with increased zinc
TITLE OF INVENTION: binding
NUMBER OF SEQUENCES: 18
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                     Length 65;
                                                                                                                                                                                                                                                                                                                                   Query Match 48.9%; Score 287; DB 3; Length 65
Best Local Similarity 91.4%; Pred. No. 7.7e-27;
Matches 53; Conservative 0; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Finnegan, Henderson, Farabow, Garrett, ADDRESSEE: & Dunner, L.L.P. STREET: 1300 I Street, N.W. CITY: Washington STATE: District of Columbia COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 5, Application US/08900574 Patent No. 6221837
                                                                                                                                                                                         ORGANISM: Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: (202) 408-4000
TELEFAX: (202) 408-4400
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 66 aming acids
INFORMATION FOR SEQ ID NO:
SEGUENCE CHARACTERISTICS:
LENGTH: 65 amino acids
TYPE: Amino acid
STRANDEDNESS: Single
                                                                                                                     TOPOLOGY: linear MOLECULE TYPE: Protein ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: Amino acid
STRANDEDNESS: Single
                                                                                                                                                                                                                                           NAME/KEY: Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: line
MOLECULE TYPE: P
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                  LOCATION:
                                                                                                                                                                                                                                                                                      US-08-900-574-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-900-574-5
                                                                                                                                                                                                                  FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qa
```

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

- protein search, using sw model OM protein

5; Search time 33.7237 Seconds (without alignments) 472.415 Million cell updates/sec September 16, 2003, 12:38:55

Run on:

ntile: US-095423-100-6

1 MFPTIPLSRLFDNAMLRAHR......IVEQCCTSICSLYQLENYCN 107 Sednence:

Scoring table: BLOSUM62 Gapop 10.0 , Gapext 0.5

Total number of hits satisfying chosen parameters: 556269 seqs, 148893369 residues Searched:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database:

1. /cgn2_6/ptodata/2/pubpaa/USO7_PUBCOMB.pep:*
2. /cgn2_6/ptodata/2/pubpaa/USO6_NEW_PUB.pep:*
3. /cgn2_6/ptodata/2/pubpaa/USO6_NEW_PUB.pep:*
4. /cgn2_6/ptodata/2/pubpaa/USO6_PUBCOMB.pep:*
5. /cgn2_6/ptodata/2/pubpaa/USO7_NEW_PUB.pep:*
6. /cgn2_6/ptodata/2/pubpaa/USO7_NEW_PUB.pep:*
7. /cgn2_6/ptodata/2/pubpaa/USO7_NEW_PUB.pep:*
8. /cgn2_6/ptodata/2/pubpaa/USO9_NECOMB.pep:*
9. /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*
11. /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*
12. /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*
11. /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*
12. /cgn2_6/ptodata/2/pubpaa/USO9_PUBCOMB.pep:*
13. /cgn2_6/ptodata/2/pubpaa/USO0_PUBCOMB.pep:*
14. /cgn2_6/ptodata/2/pubpaa/USO0_PUBCOMB.pep:*
15. /cgn2_6/ptodata/2/pubpaa/USO0_PUBCOMB.pep:*
16. /cgn2_6/ptodata/2/pubpaa/USO0_PUBCOMB.pep:*
17. /cgn2_6/ptodata/2/pubpaa/USOO_PUBCOMB.pep:*
18. /cgn2_6/ptodata/2/pubpaa/USOO_PUBCOMB.pep:*
18. /cgn2_6/ptodata/2/pubpaa/USOO_PUBCOMB.pep:*
18. /cgn2_6/ptodata/2/pubpaa/USOO_PUBCOMB.pep:*
18. /cgn2_6/ptodata/2/pubpaa/USOO_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Description	Sequence 6, Appli			18		· ``	~	~	~	Sequence 12, Appl	~			Sequence 10. Appl	•
ΔI	US-10-054-873-6	US-10-054-873-7	US-10-054-873-5	US-09-894-711-18	US-09-861-687-19	US-09-858-935B-5	US-10-028-410-3	US-09-280-030-63	US-09-947-563-4	US-09-736-611-12	US-09-740-359-12	US-09-894-711-12	US-09-736-611-10	US-09-740-359-10	US-09-894-711-10
DB	14	14	14	10	10		14	6	9	σ	6	10	σ	6	10
% Query Match Length DB	107	150	25	124	138	51	51	117	96	124	124	124	125	125	125
% Query Match	100.0	94.6	50.1	48.5	48.4	47.4	47.4	47.4	47.2	46.9	46.9	46.9	46.9	46.9	46.9
Score	587	555.5	294	284.5	284	278.5	278.5	278	277	275.5	275.5	275.5	275.5	275.5	275.5
Result No.		7	m	4	S	Q	7	æ	σ	10	11	12	13	14	15

. 5 5 7 8 7 5 7 5 7 5 7 5 7 5 7 5 7 5 7 5	. 2,4 1,5,5	Sequence 4, Appla Sequence 125, Appla Sequence 9, Appla Sequence 6, Appla Sequence 6, Appla Sequence 1, Appla		Sequence 1, Appli Sequence 6, Appli Sequence 6, Appli Sequence 7, Appli Sequence 7, Appli
US-09-736-611-8 US-09-740-359-7 US-09-736-611-6 US-09-740-359-5 US-09-984-711-5		US-10-104-873-4 US-09-205-658-125 US-09-815-229-3 US-09-804-409A-9 US-09-969-748C-6 US-10-038-686-1	US-10-526 913 US-10-054-873 US-09-984-010 US-10-153-207 US-10-400-377 US-10-400-377	US-10-298-148-1 US-10-153-207-6 US-09-219-918-9 US-09-280-030-66 US-09-894-711-7 S-09-853-688-2
9999	496799	120	122	
44441 74444 74444	130 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	110 110 110 110	1992 1991 1991 1991	191 2114 2174 1445 2174
44444 6.0444 7.047	4 4 4 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 4 4 4 4 4 ຕິດເບີດເບີດ ທິດເບີດເບີດ ທິດເບີດເບີດ		44444 6 6 6 6 6 6 6 7 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
275.5 275.5 274 274 274	269.5 269.5 267 267 267	267 267 267 267 267	260 260 260 255.5 255.5 255.5	255.5 255.5 255.5 255.5 255.5 255.5
16 17 18 19 20	22 2 2 2 2 2 2 2 2 2 2 3 2 2 3 2 3	27 28 29 30 32	4 8 8 8 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9	44444 14444 14444 1444

ALIGNMENTS

```
Sequence
                                                                                                                                                                                                                                                                                                                              COUNTYER READABLE FORM:

ZIP: 94111-3834

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: 1BM PC COMPALIDIE

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PATCHIN Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/10/054,873

FILING DATE: 22-Jan-2002

PRIOR APPLICATION NUMBER: WO PCT/CN98/00052

FILING DATE: 31-MAR-1998

APPLICATION NUMBER: US/9423,100

FILING DATE: 11-DEC-2000

ATTORNEY/AGENT: 11-DEC-2000
                      Sequence 6, Application US/10U;4873
Publication No. US20020164712A1
GENERAL INFORMATION:
APPLICANT: Gan, Zhong Ru
TITLE OF INVENTION: Chimeric Protein Containing an Intramolecular Chaperone-Like S
                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
ADDRESSE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadoro Center, Eighth Floor
CITY: San Francisco
STATE: California
                                                                                                                                                                                    NUMBER OF SEQUENCES:
US-10-054-873-6
```

NAME: Mycroft, Frank J RESISTRATION NUMBER: 46,946 REFERENCE/DOCKET NUMBER: 020167-000130US INFORMATION FOR SEQ ID NO: 6: LENGTH: 107 amino acids TYPE: amino acid SEQUENCE CHARACTERISTICS

```
61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGSHLVEALYLVCGER 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                50.1%; Score 294; DB 14; Length 52; 100.0%; Pred. No. 4.1e-28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: 020167-000130US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: WO PCT/CN98/00052
FILING DATE: 31-AMR-1998
APPLICATION NUMBER: US 09/423,100
FILING DATE: 11-DEC-2000
                                                                     121 GFFYTPKTRGIVEQCCTSICSLYQLENYCN 150
                                              78 GFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Pred. No. 4.10
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/054,873
FILING DATE: 22-Jan-2002
CLASSIFICATION: <UNKnown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: Linear
MOLECULE TYPE: proteic
SEQUENCE DESCRIPTION: SEQ ID NO: 5:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,946
                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: USA
ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                     Sequence 5, Application US/100' 873 Publication No. US20020164712A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 52 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO: 5: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                         CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 100.0
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-894-711-18
                                                                                                                                                                                US-10-054-873-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-054-873-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                           RESULT 3
                                            ò
                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                              ö
                                                                                                                                                                                                                        1 MFPT1PLSRLFDNAM1.RAHRLHQLAFDTYQEFEEAY1PKEQKYSFLQNPLGTGPRFVNQH 60
                                                                                                                                                                                                                                             ----LGTGPRFVNQHLCGSHLVEALYLVCGER 77
                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Gan, Zhong Ru
TITLE OF INVENTION: Chimeric Protein Containing an
Intramolecular Chaperone-Like Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 150;
                                                                                                                               Length 107;
                                                                                                                                                                                                                                                                                                                                 61 LCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                            61 LCGSHLVEALYLVCGERGFFYTPKTRGIVEQUCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP
                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embaccadero Center, Eighth Floor
CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              94.6%; Score 555.5; DB 14; 71.3%; Pred. No. 5e-59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,946
REFERENCE/DOCKET NUMBER: 020167-000130US
                                                                                                                               100.0%; Score 587; DB 14; 100.0%; Pred. No. 5.2e-63;
                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: WO PCT/CN98/00052
FILING DATE: 31-MAR-1998
APPLICATION NUMBER: US 09/423,100
FILING DATE: 11-DEC-2000
                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/10/054, EFILING DATE: 22-Jan-2002
CLASSIFICATION: <UNKNOWN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIble
OPERATING SYSTEM: PC-DOS/MS-DOS
                       TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 6:
0S-10-054-873-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              : TOPOLOGY: linear
: MOLECULE TYPE: protein
: SEQUENCE DESCRIPTION: SEQ ID NO: 7:
US-10-054-873-7
  STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 7, Application US/10054873 Publication No. US20020164712A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 150 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO:
                                                                                                                                                    Best Local Similarity 100.
Matches 107; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 71.3
Matches 107; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21P: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SECUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-054-873-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                    Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 2
                                                                                                                                                                                                                                                                                                            ò
```

```
Sequence 18, Application US/09894711
Patent No. US20020137144A1
GNERAL INFORMATION:
GNERAL INFORMATION:
GNERAL INFORMATION:
GNERAL TO. US20020137144A1
APPLICANT:
Ludvigsen, Svend
TITLE OF INVENTION:
INSULID precursors and
TITLE OF INVENTION:
INSULID precursor analogues having improved fermentation
FILE FERRENCE: 6144.400-02
CURRENT APPLICATION NUMBER: US/09/894,711
CURRENT FILING DATE: 2001-06.28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ·.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 52
blication were very debugged in the containing an applicant: General Containing an IITLE OF INVENTION: Chimeric Protein Containing an IITLE OF INVENTION: Chimeric Chaperone-Like Sequence
```

```
58 STNNGLLFINTTIASIAAKEEGVSLDKRFVNOHLCGSHLVEALYLVCGEKGFFYTPKAAK 117
                                                                                                                                                                                                                                           57
                                                                                                                                                                                                 ----PREVNQHLCGSHLVEALYLVCGERGFFYTPK-TR 86
                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           40:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Dubaquie, Yves
APPLICANT: Dubaquie, Yves
APPLICANT: Louwan, Henry B.
ITILE OF INVENTION: METHOD FOR TREATING CARTILAGE DISORDERS
FILE REFERENCE: P1794R1
GURRENT PAPLICATION NUMBER: US/09/858,935B
CURRENT FILING DATE: 2002-07-02
PRIOR APPLICATION NUMBER: US 60/248,985
PRIOR APPLICATION NUMBER: US 60/204,490
PRIOR FILING DATE: 2000-05-16
NUMBER: OF SEO ID NOS: 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 278.5; DB 11; Length 51;
Pred. No. 2.9e-26;
0; Mismatches 0; Indels 1
                                                                                                             Length 138,
                                                                                                      Score 284; DB 10; Length 13
Pred. No. 2.2e-26;
5; Mismatches 28; Indels
                                                                                                                                                      5; Mismatches
               MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 19:
US-09-861-687-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: LOWMAN, Henry
TITLE OF INVENTION: PROTEIN VARIANTS
FILE REFERENCE: P1712R1-1
CUBRENT APPLICATION NUMBER: US/10/028,410
CUBRENT FILING DATE: 2001-12-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: 05/09/477,924
PRIOR FILING DATE: 2000-112-19
PRIOR FILING DATE: 2000-01-05
NUMBER OF SEQ ID NOS: 6
SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                   118 GIVEQCCTSICSLYQLENYCN 138
                                                                                                                                                                                                                                                                                                                                                                          87 GIVEQUETSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 5, Application US/09858935B Publication No. US200300691777 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 3, Application US/10028410
Publication No. US20020160955A1
GENERAL INFORMATION:
APPLICANT: Dubaquie, Yves
APPLICANT: Lowman, Henry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            47.4%;
98.1%;
                                                                                                        Query Match
Best Local Similarity 48.28;
Matches 68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Overy Match
Best Local Similarity 98.1%
    TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Homo sapiens
US-09-858-935B-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                      49 PLGTG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-858-935B-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-028-410-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-028-410-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                įς
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO .
LENGTH: 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT
                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
ADDRESSEE: No. US20020193292Alo No. US 0020193292Aldisk of No. US200201932
STREET: 405 Lexington Avenue, 64th Floct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 10; Length 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER FAIRLY GOVER:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM FO Compatible
OPENATING SYSTEM: PC-DOS/MS-DV:S
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/861,687
FILING DATE: 21-MAY-2001
CLASSIFICATION: CURKNOWN>
                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 48.5%; Score 284.5; DB 10; Best Local Similarity 92.7%; Pred. No. 1.7e-26; Matches 51; Conservative 2; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 33,728
REFERENCE/DOCKET NUMBER: 4341.204-US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Brandt, Jakob
Kurtzhals, Peter
Hansen, Hertz Per
Kaarsholm, Niels Christian
TITLE OF INVENTION: INSULIN DERIVATIVES
NUMBER OF SEQUENCES: 26
PRIOR FILING DATE: 2000-0317

PRIOR APPLICATION NUMBER: PA 1999 01869

PRIOR APPLICATION NUMBER: PA 1999 01869

PRIOR FILING DATE: 1999-12-29

PRIOR APPLICATION NUMBER: 60/211,081

PRIOR APPLICATION NUMBER: 60/181,450

PRIOR APPLICATION NUMBER: 60/181,450

PRIOR APPLICATION NUMBER: 60/181,450

PRIOR FILING DATE: 2000-02-10

PRIOR FILING DATE: 2000-12-19

NUMBER OF SEQ ID NOS: 20

SOFTWARE: FASLSEQ for Windows Version 4.0

SEQ ID NO 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE: New York
COUNTRY: United States of America
ZIP: 10174-6401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION DAIA:
APPLICATION NUMBER: 08/932,082
FILING DATE: 16-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELECOMMUNICATION INFORMATION:
TELEPHONE: 122-867-0123
TELEFAX: 212-878-9655
INFORMATION FOR SEQ ID NO: 19:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-861-687-19; Sequence 19, Application US/09861687; Publication No. US20020193292A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Lambiris, Elias J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 138 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Markussen, Jan
Jonassen, Ib
Havelund, Svend
                                                                                                                                                                                                                                                                                               TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                      ; OTHER INFORMATION: Synthetic US-09-894-711-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CITY: New York
```

a

ò

```
Indels 34; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 96:
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/947,563
FILING DATE: 07-Sep 2001
CLASSIFICATION: <UNKNOWN>
                                                                                              Ouery Match

47.2%; Score 277; DB 10;
Best Local Similarity 59.3%; Pred. No. 9.8e-26;
Matches 54; Conservative 0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SICSLYQLENYCN 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: 1..96
SEQUENCE DESCRIPTION: SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Escherichia coli
                                                                                                                                                                                                                                                                                                              LENGIH: 96 amino acids
                                                                                                                                                                                                                                                                                                                               TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT; ORGANISM: N-terminal extension US-09-736-611-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: Protein
                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
MOLECULE TYPE: protein
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           111111
66 LALEGSLOKRGIVEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86 -----RGIVE(
                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-947-563-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Keller, Reinhold
TITLE OF INVENTION: Improved process for obtaining
insulin precursors having correctly bonded cystine bridges
                                                                                                                                                                                              Sequence 63, Application US/09280030A

Sequence 63, Application US/09280030A

Patent No. US2001002151Sal

GENERAL INFORMATION:

APPLICANT: Sato, Seiji

APPLICANT: Hogashikuni, Naohiko

APPLICANT: Kondo, Masaaki

TITLE OF INVENTION: DREF ENCODING NEW FUSION PROTEINS AND PROCESSES FOR

TITLE OF INVENTION: PREPARING USFFUL POLYPEPTIDES THROUGH EXPRESSION OF THE

TITLE OF INVENTION: DASS

CURRENT APPLICATION NUMBER: US/09/280.030A

CURRENT FILING DATE: 1999-03-26

CURRENT FILING DATE: 1999-03-31

NUMBER OF SEQ ID NOS: 66

SEQ ID NO 63

EARLIER PATENTING USECODING NOS: 66

SEQ ID NO 63

EDECTH 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ï
                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28 TAPMFVNOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPL 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTHER INFORMATION: Description of Artificial Sequence: Designated is 'O'THER INFORMATION: an amino acid sequence of CTHER INFORMATION: MWPSP-MWPmpl0.Met-Proinsulin US-09-280-030-63
                                                                                   56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCT - ICSLYQLENYCN 107
                                                                                                     1 FVNQHLCGSHLVEALYLVCGERGFFYTPKT-GIVEQCCTSICSLYQLENYCN 51
                                                    ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34;
                  DB 14; Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS: ADDRESSE: Finnegan, Henderson, Farrabow, Garrett &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     47.4%; Score 278; DB 9; Length 117; 60.0%; Pred. No. 9.5e-26; tive 0; Mismatches 2; Indels
              ch 47.4%; Score 278.5; DB 1.
1 Similarity 98.1%; Pred. No. 2.9e-26;
51; Conservative 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             86 -----RGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: Washington
STATE: D.C.
COUNTRY: USA
ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 4, Application US/09947563
Patent No. US2020156234A1
GENERAL INFORMATION:
APPLICANT: RUDYOGER, Franz Josef
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: 1300 I Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 60.09
Matches 54; Conservative
   Query Match
Best Local Similarity
Matches 51: Conserved
                                                                                                                                                                                       US-09-280-030-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 9
US-09-947-563-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
```

δ

```
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                              Ouery Match
Best Local Similarity 90.9%;
Matches 50; Conservative
                                                                                                                           FEATURE:
COTHER INFORMATION: Synthetic
US-09-894-711-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match
Best Local Similarity 90.9%.
Matches 50; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ) ORGANISM: N-terminal extens:
US-09-736-611-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-740-359-10
             LENGTH: 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 12, Application US/09740359

Fatent No. US20010041787A1

GENERAL INFORMATION:

APPLICANT: Kjeldsen, Thomas Borglum

APPLICANT: Lodvigsen, Svend

TITLE OF INVENTION: Method for making insulin precursors and

TITLE OF INVENTION: Method for making insulin precursor analogues having improved fermentation

TITLE OF INVENTION: yield in yeast

FILE REFERENCE: 6148.200-US

CURRENT APPLICATION NUMBER: US/09/740,359

CURRENT APPLICATION NUMBER: PA 2000 00443

FRIOR FILING DATE: 2000-012-19

PRIOR FILING DATE: 2000-03-17

PRIOR FILING DATE: 2000-06-13

PRIOR FILING DATE: 2000-06-13

PRIOR FILING DATE: 2000-06-13

PRIOR FILING DATE: 2000-06-13

FRIOR FILING DATE: 2000-02-10

NUMBER OF SEQ ID NOS: 16

SSOFTWARE: FASTSEQ for Windows Version 4.0

SSO ID NO 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Individual Survival Institution of the National Survival Institution of the National Survival Institution of the National Institution Insti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -
                                                                                        ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                        Gaps
                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .,
Query Match 46.9%; Score 275.5; DB 9; Length 124; Best Local Similarity 90.9%; Pred. No. 2.1e-25; Matches 50; Conservative 2; Mismatches 2; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 46.9%; Score 275.5; DB 9; Length 124; Best Local Similarity 90.9%; Pred. No. 2.1e-25; Matches 50; Conservative 2; Mismatches 2; Indels 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TYPE: PRT
; ORGNISM: TA57 leader fused with N-terminally extended....
US-09-740-359-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 12, Application US/09894711 Patent No. US20020137144A1 GENERAL INFORMATION: APPLICANT: Kjeldsen, Thomas Borglum APPLICANT: Ludvigsen, Svend
                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-740-359-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-894-711-12
```

```
Sequence 10, Application US/09740159;
Sequence 10, Application US/09740159;
Parent No. US20010041787A1
GENERAL INFORMATION
APPLICANT: Kjeldsen, Thomas Borglum
APPLICANT: Ludvigsen, Svend
TITLE OF INVENTION: Method for making insulin precursors and
TITLE OF INVENTION: Wield in yeast
TITLE OF INVENTION: yield in yeast
TITLE OF INVENTION: yield in yeast
TITLE OF INVENTION: yield in yeast
GURRENT APPLICATION NUMBER: US/09/740,359
CURRENT FILING DATE: 2000 3-19
PRIOR FILING DATE: 2000-03-17
PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 2000-06-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ij
                                                             1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                             Gaps
                                                                                                      54 PREVNOHICGSHLVEALYLVCGERGFFYTPKT-RGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Kjeldsen, Thomas
APPLICANT: Ludvigsen, Svend
APPLICANT: Ludvigsen, Svend
APPLICANT: Ludvigsen, Svend
TITLE OF INVENTION: Method For Making Insulin Precursors and
TITLE OF INVENTION: Insulin Precursor Analogs
FILE REPERENCE: 6058_200-uS
CURRENT APPLICATION NUMBER: US/09/736,611
CURRENT PILING DATE: 2000-12-14
PRIOR FILING DATE: 2000-02-10
PRIOR FILING DATE: 2000-06-13
PRIOR FILING DATE: 2000-06-13
PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 2000-06-13
                                                          7;
        DB 10; Length 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    core 275.5; DB 9; Length 125;
Pred. No. 2.1e-25;
2; Mismatches 2; Indels 1
                                                          Indels
Score 275.5; DB 10; Pred. No. 2.1e-25; 2; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEO ID NOS: 18
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 10
LENGTH: 125
                                                                                                                                                                                                                                                                                              Sequence 10, Application US/09736611
Patent No. US20010023069A1
```

```
TITLE OF INVENTION: Method for making insulin precursors and TITLE OF INVENTION: Method for making insulin precursors and TITLE OF INVENTION: insulin precursor analogues having improved fermentation: TITLE OF INVENTION: jueld in yeast FILE REFERENCE: 6148 400-US CURRENT APPLICATION NUMBER: US/09/894,711 CURRENT PAPLICATION NUMBER: D200 00443 PRIOR FILING DATE: 2000-06-28 PRIOR PALICATION NUMBER: PA 2000 00443 PRIOR PALICATION NUMBER: PA 1999 01869 PRIOR PALICATION NUMBER: PA 1999 01869 PRIOR PALICATION NUMBER: 60/21.081 PRIOR FILING DATE: 2000-06-13 PRIOR PAPLICATION NUMBER: 60/181,450 PRIOR PAPLICATION NUMBER: 60/181,450 PRIOR PALICATION NUMBER: 09/740,359 PRIOR APPLICATION NUMBER: 09/740,359 PRIOR APPLICATION NUMBER: 09/740,359 PRIOR FILING DATE: 2000-12-19 NUMBER OF SEQ ID NOS: 20 SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1;
                                                                                                                                                                                                                                                                                                                                                   ::
                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                46.9%; Score 275.5; DB 10; Length 125; 90.9%; Pred. No. 2.1e-25; tive 2; Mismatches 2; Indels 1;
                                                                                                                                                                                                                                                                              Query Match

46.9%; Score 275.5; DB 9; Length 125;
Best Local Similarity 90.9%; Pred. No. 2.1e-25;
Matches 50; Conservative 2; Mismatches 2: Indels 1
                                                                                                                                                                           ; TYPE: PRT
; ORGANISM: TA39 leader fused with N-terminally extended
US-09-740-359-10
PRIOR APPLICATION NUMBER: 60/181,450
PRIOR FILING DATE: 2000-02-10
NUMBER OF SEQ ID NOS: 16
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 10
LENGTH: 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 10, Application US/09894711;
Patent No. US20020137144A1
CENERAL INFORMATION Thomas Borglum APPLICANT: Kjeldsen, Thomas Borglum APPLICANT: Ludvigsen, Svend
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: PRT ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OTHER INFORMATION: Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          50; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
Matches 50; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-894-711-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                            ó
```

g

Search completed: September 16, 2003, 12:52:26 Job time : 34.7237 secs

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

 protein search, using sw model OM protein

Run on:

September 16, 2003, 12:36:15; Search time 12.4903 Seconds (without alignments) 823.845 Million cell updates/sec

US-09-423-100-6 587

1 MFPIIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 107 Fitte: Perfect score: Sequence:

Scoring table:

283308 seqs, 96168682 residues BLOSUM62 Gapop 10.0 , Gapext 0.5

Searched:

283308 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

PIR_76:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

CIMMAPTEC

RIES	Description	epidermal growth f		insulin - finback	٠	insulin precursor	insulin precursor	insulin - hamster	insulin - Egyptian	insulin precursor	insulin precursor	ď	insulin - sei whal	insulin - goat	•	insulin precursor	insulin precursor	insulin - cat	insulin precursor	insulin - common s		insulin precursor	insulin precursor	insulin - North Am	somatotropin 1 pre	somatotropin - rhe	insulin precursor	insulin precursor	insulin - Chinchil	insulin 1 precurso
SUMMARIES	ID	PC7082	LINWHP	INWHE	INEL	B42179	300178	INHY	INMSSP	A59151	IPHU	A42179	INWHIS	INGF	INCMA	IPPG	INRB	INCT	IPDG	INMKSÖ	148166	IPBO	A398B3	100362	STHU	167410	INSH	IPHO	INCB	INMSI
	DB	7	_	-	_	7	7	-	-	~	~	~	-	-1		-4	H	~	7	٦	~	~	~	~	~	~	-	~		~
	Query Match Length	96	51	51	51	110	110	51	51	51	110	110	51	51	51	84	110	51	110	51	110	105	108	51	217	217	77	86	51	108
100	Ouery Match	46.8			46.6	46.5	46.5	46.3	45.7	45.6		45.5	44.9	44.9	44.9	44.8	•	44.7	•	44.5	•			43.7				42.9		42.6
	Score	275	273.5	273.5	273.5	273	273	271.5	268.5	267.5	267	267	263.5	263.5	263.5	263	263	262.5	262	261.5	260	258.5	257	256.5	255.5	255.5	252.5	252	251.5	250
	Result No.		7	m	4	2	9	7	œ	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

insulin 1 precurso	insulin - doose	insulin 2 precurso	insulin 2 precurso	insulin 11 - North	insulin I2 - North	insulin precursor	insulin - crested	insulin - turkey (insulin - ostrich	insulin - black-be	insulin - slider t	insulin precursor	insulin - Amphiuma	insulin - duckbill	insulin precursor
IPRT1	INGS	IPRT2	I NMS 2	: 44469	S44470	151221	TNPO	NTK	SONI	A61129	A60414	IPCH	S61361	863590	IPDK
-	-	~	~	~	~	7	-	_		~	~	~	~	~	-
110	51	110	110	25	52	103	51	51	51	51	51	107	52	51	81
42.4	42.3	42.2	42.2	41.9	41.9	41.7	41.7	41.7	41.7	41.7	41.7	40.8	40.5	40.1	39.8
249	248.5	248	248	246	246	245	244.5	244.5	244.5	244.5	244.5	239.5	238	235.5	233.5
0	_	~	m	4	S	9	7	&	6	0	_	~	~	4	'n

ALIGNMENTS

PC7082	
epidermal C;Species	epidermal growth factor/single chain insulin fusion protein – Bacillus brevis (fragme C;Species: Bacillus brevis
C; Date: 18	C;Date: 18-Aug-2000 #sequence_revision 18-Aug-2000 #text_change 31-Mar-2003 C;Accession: PC7082; PC7083
R, Koh, M.	R;Koh, M.; Hanagata, H.; Ebisu, S.; Morihara, K.; Takagi, H.
A:Title: (Biosci. Biotechnol. Blochem. 64, 13/9-1081, 2000 A:Title: Use of Bacillus brevis for synthesis and secretion of Des-B30 single-chain h
A; Referen	A) Reference number: PC7082; MUID:20335834; PMID:10879487
A; Accessio	A; Accession: PC7082
A; Molecul	A;Molecule type: DNA
A; Residue:	s: 1-96 <koh></koh>
A; Accessi	A; Accession: PC7083
A; Molecul	A;Molecule type: protein
A; Residue:	s: 19-28 <k02></k02>
C;Genetics:	
A;Gene: eqf-sci	gf-sci
C;Superfa	C;Superfamily: insulin
Query M	Query Match 46.8%; Score 275; DB 2; Length 96; Best rocal similarity 94.3%; Pred No. 1.20-21;
Matches	Matches 50; Conservative 1; Mismatches 0; Indels 2; Gaps 1;
0,	55 REVNOHLCGSHLVEALYLVCGERGFFYTPKTRGTVEQCCTSICSLYQLENYCN 307
7	
an	45 KEVNOHLOGSHUVEAGYLVOGERGIFYTEM TOLVEGOTSLOSERTULEMYON 96

Cipate: Species: Physical catodon (sperm whale)
Cipate: 31.Mar-1992 #sequence_revision 31.Mar-1992 #text_change 16.Jul-1999
Cipate: 31.Mar-1992 #sequence_revision 31.Mar-1992 #text_change 16.Jul-1999
Cipate: Sinar-1992 #sequence_revision 31.Mar-1992 #text_change 16.Jul-1999
Cipate: Saito, T.; Tto, Y.; Fujino, M.
Nature 181, 1468-1469, 1958
A.Title: Structure of sperm- and sei-whale insulins and the:r breakdown by whale peps A.Reference number: A93142
A.Reference number: A93142
A.Residues: 1-30;31-51 <ISH>
R.Harris, J.I.; Sanger, F.; Naughton, M.A.
Archille: Species differences in insulin.
A.Reference number: A90082
A.Reference number: A90082 A:Wolecule type: protein
A:Residues: 1-30:31-51 <HAR>
C:Superfamily: insulin
C:Keywords: hormone: pancreas
F:1-30/Domain: insulin chain B #status experimental <BCH> insulin - sperm whale

~

```
C;Species: Cercopithecus aethiops (green monkey, grivet)
C;Species: Cercopithecus aethiops (green monkey, grivet)
C;Date: 04-Mar-1993 #sequence_revision 18-Nov-1994 #text_change 16-Jul-1999
C;Accession: B42179; A55232; S16494; S22056
R;Seino, S.; Bell, G.I.; Li, W.H.
Mol. BMol. BVol. 9, 1991-203, 1992
A;Title: Sequences of primate insulin genes support the hypothesis of a slower rate of A;Reference number: A42179; MUID:9219953; PMID:1560757
A;Molecule +norm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C. Accession: J00178
R. Wetekam, W.: Groneberg, J.: Leineweber, M.: Wengenmayer, F.; Winnacker, E.L. Gene 19, 179-183, 1982
Gene 19, 179-183, 1982
A. Title: The nuclectide sequence of cDNA coding for preproinsulin from the primate Ma A; Reference number: J00178; MUID:83080474; PMID:6184262
A. Accession: J00178
A. Molecule type: MRNA
A; Residues: J-110 < WET>
A; Cross-references: GB:J00336; NID:9342121; PIDN:AAA36849.1; PID:9342122
C. Superfamily: insulin
F:J-24-Yoomain: signal sequence *status predicted <SIG>F:25-54-Yoomain: signal sequence *status predicted <SIG>F:25-54-Yoomain: nsulin chain B *status predicted <SIG>F:55-89-Yoomain: insulin chain A status predicted <ACH>F:59-110/Pomain: insulin chain A status predicted <ACH>F:51-96-43-109;95-100/Disulfide b.nds: *status predicted
F:31-96.43-109;95-100/Disulfide b.nds: *status predicted
                                                                                                                                                                                                                                                                                                                                              A:Molecule type: DNA
A:Residues: 1-110 <SEL:
A:Residues: 1-110 <SEL:
A:Residues: 1-110 <SEL:
A:Cross-references: EMEL:
A:Cross-references: EMEL:
A:Cross-references: EMEL:
A:Cross-reference extracted from NCBI backbone (NCBIN:95185, NCBIP:95194)
A:Reterson, J.D.; Nehrlich, S.; Oyer, P.E.; Steiner, D.F.
A:Title: Determination of the anino acid sequence of the monkey, sheep, and dog proin A:Reference number: A92111: MUID:72258016; PMID:4626369
A:Recession: A05232
A:Molecule type: protein
A:Redidues: 57-87 <PET>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ........... 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   insulin precursor - crab-eating macaque
C:Species: Macaca fascicularis (crab-eating macaque)
C:Date: 07-Sep-1990 #sequence_revision 07-Sep-1990 #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23 PAFVNOHLGGSHLVEALYL" GERGFFYTPKTRREAEDPOVGOVELGGGFGAGSLOPLAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 110.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Aintrons: 63/1
C:Superfamily: insulin
C:Keywords: hormone; pancreas
F:1-24/Domain: signal sequence *status predicted <SIG>
F:25-54/Domain: insulin chain # *status predicted <BCH>
F:25-54,90-110/Product: insulin *status predicted <MAT>
F:57-97/Domain: connecting peptide *status experimental
F:90-110/Domain: insulin chain A *status predicted <ACH>
F:31-96,43-109,95-100/Disulfide bonds: *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      46.5%; Score 273; DB 2; 60.2%; Pred. No. 2.2e-21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         46.5%; Score 273; DB 2;
60.2%; Pred. No. 2.2e-21;
tive 0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          54 PRFVNQHLCGSHLVEALYLVCGERGFFYTPKT - - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    54 PREVNQHLCGSHLVEALYLVCGERGFFYTPKT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                # EGSLOKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            86 -----RGIVEQCCISICS: YQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 60.2
Matches 53; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 60.29
Matches 53; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Molecule type: protein
X:Residues: 1-30;31-51 <SMI>
A;Note: the species of elephant is not given, but it is most probably the Indian elephan
C;Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ï
                                                                                                                                                                                                                              Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    insulin - finback whale (tentative sequence)
C;Species: Balaenoptera physalus (finback wha'e, common rorqual)
C;Dacte: 31-Mar-1992 *sequence_revision 31-Mar .992 *text_change 16-Jul-1999
C;Accession: A91918
R;Hama, H.; Titani, K.; Sakaki, S.; Narita, K.
J. Blochem: 56, 285-293, 1964
A;Title: The amino acid sequence in fin-whale insulin.
A;Reference number: A91918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C:Species: Elephantidae gen. sp. (elephant)
C:Date: 24-Apr-1984 *sequence_revision 30-Sep-1988 *text_change 16-Jul-1999
C:Accession: A01584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                      56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 FVNQHLGGSHLVEALYLVGGERGFFYTPKA-GIVEQCCTSICSLYQLENYCN 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                       1 FVNOHLCGSHLVEALYLVCGERGFFYTPKA-GIVEQCCTSICSLYQLENYCN 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 FVNQHLCGSHLVEALYLVCGERGFFYTPKT-GIVEQCCTGVCSLYQLENYCN 51
                                                                                                                                                                                                                              ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46.6%; Score 273.5; DB 1; Length 51; 94.2%; Pred. No. 8.7e-22;
                                                                                                                                                               51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Am. J. Med. 40, 662-666, 1966
A;Title: Species variation in the amino acid sequence of insulin
A;Reference number: A90029; MUID:66160119; PMID:5949593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1; Indels
                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C;Superfamily: insulin
C;Keywords: hormone; pancreas
F;1-30,70omain: insulin chain B *status experimental <BCH>
F;1-30,31-51/Product: insulin #status experimental <ACH>
F;31-51/Domain: insulin chain A *status experimental <ACH>
F;7-37,19-50,36-41/Disulfide bonds: *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <ACH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C.Keywords: hormone; pancreas
F:1-30/Domain: insulin chain B fstatus experimental <BCH>
F:1-30,31-51/Product: insulin fstatus experimental <MAT>
F:31-51/Domain: insulin chain A fstatus experimental <ACH>
F:71-37,19-50,36-41/Disulfide bonds: fstatus predicted
                             F:1-30,31-51/Product: insulin *status experimental <MAT>F:31-51/Domain: insulin chain A *status experimental <ACI F:7-37,19-50,36-41/Disulfide bonds: *status p::dicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             46.6%; Score 273.5; DB 1; llarity 96.2%; Pred. No. 8.7e-22; Conservative 0; Mismatches 1;
                                                                                                                                                     Score 273.5. C
; Pred. No. 8.7e-
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1; Mismatches
                                                                                                                                                        Query Match
Best Local Similarity 96.2%;
Matches 50; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Molecule type: protein
A;Residues: 1-30;31-51 <HAM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 49; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
es 50; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: A5 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Accession: A01584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   insulin - elephant
```

Query Match

Matches

R; Smith, L.F.

RESULT 5

à

RESULT 4

qq

ò a

```
Rioliveira, A.E.A.; Machado, O.L.T.; Gomes, V.M.; Xavier-Neto, J.; Pereira, A.C.P.; V Protein Popt. Lett. 6, 15-21, 1999
A;Title: Jack bean seed coat contains a protein with complete sequence lomology to bc A;Reference number: A59151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A01579;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7.7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C:Species: Homo sapiens (man)
C:Date: 23-Oct-1981 #sequence_revision 23-Oct-1981 #text_change 08-Dec 2000
C:Accession: 49222: A94253: A93216; A94251; A93144; A92075; A91166; 15H114;
C:BBell, G.I.; Pictet, R.L.; Rutter, W.J.; Cordell, B.; Tischer, E.; Goodman, Nature 284, 26-32, 1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Residues: 1-110 CULL>
A;Cross-references: GB:J00265: NID:q186429; PIDN:AAA59172.1: PID:q386828
R:Bell, G.L.; Swain, W.F.; Picret, R.; Cordell, B.; Goodman, H.M.; Rutter, Nature 282, 525-525, Fib.
Nature 282, 525-525, Fib.
A;Title: Nucleotide sequence of a CDNA clone encoding human preprofinsulin.
A;Reference number: A93216; MUID:80054779; PMID:503234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; Gans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Residues: 1-110 cREL.>
A; Residues: 1-110 cREL.>
A; Cross-references: GB:J00265, D:g186429; PIDN:AAA59172.1; P1D:g18682H
A; Cross-references: GB:J00265, D:g186429; PIDN:AA59172.1; P1D:g18682H
B; Cllrich, A.; Dull, T.J.; Gray, A.; Brosius, J.; Sures, I.
Science 209, 612-615, 1980
A; Title: Genetic variation in the human insulin gene.
A; Reference number: A94253; MUID:85236313; PMID:6248962
A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: GB:J00265; NID:g186429; PIDN:AAA59172.1; PID:g386828
R;Sures, I:: Goeddel, D.V.: Gray, A.; Ullrich, A.
Science 208, 57-59, 1980
A;Title: Nucleotide sequence of human preproinsulin complementary DNA.
A;Reference number: A94251; MUID:80147417; PMID:6927840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A:Cross-references: GB:J00265; NIL:9186429; PIDN:AAA59172.1; PID:9386628
R:Nicol, D.S.H.W.; Smith, L.F.
Nature 187, 483-485, 1960
                                                                                                                                                                                                                                                                                                                                                                 A;Wolecule type: protein
A;Residues: 31-51 <MACA>
C;Comment: The two chains are probably produced from the same precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  56 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRGIVEOCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F;1-30,31-51/Product: insulin status experimental <MAT> F;1-8/Domain: chain B status experimental <GH8> F:31-51/Domain: chain B status experimental <GH8> F:31-51/Domain: chain A fattus experimental <GH8> F:31-51/Domain: A fattus predicted F:7-37,19-50,36-41/Disulfide honds: #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Title: Sequence of the human insulin gene.
A;Reference number: A93222; MUID:80120725; PMID:6243748
A;Accession: A93222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Molecule type: protein
A;Residues: 25-54;90-110 <NIC>
R;Oyer, P.E.; Cho, S.; Peterson, J.D.; Steiner, D.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Title: Amino-acid sequence of human insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   insulin precursor (validated) - human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N; Alternate names: preproinsulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Reference number: A93144
                                                                                                                                                                                                                            A;Molecule type: protein
A;Residues: 1-30 <MACB>
A;Accession: A59151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Molecule type: mRNA
A;Residues: 1-110 <BEL2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 48; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: mRNA
A; Residues: 1-110 <SUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Accession: A93144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Accession: A93216
                                                                                                                                                                                       A; Accession: B59151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: A94251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Aritle: Isolation and partial structural analysis of insulin from mouse (Mus musculus)
A:Reference number: A01591; MUID:72189454; PMID:5028210
A:Reference number: A01591; MUID:72189454; PMID:5028210
A:Reference number: A01591
A:Accession: A01591
A:Molecule type: protein
A:Residues: 1-30.31-51 <BUE>
C:Superfamily: Insulin
C:Keywords: hormone; pancreas
F:1-30.70main: Insulin chain B *status predicted <ACH>
F:1-31.70main: insulin chain A *status predicted <ACH>
F:31-51/Domain: insulin chain A *status predicted <ACH>
F:31-51/Domain: insulin chain B *status predicted <ACH>
F:31-31.71/Pomain: insulin chain B *status predicted <ACH

F:31-31.71/Pomain: insulin chain B *status predicted <ACH

F:31-31.71/Pomain: insulin chain B *status predicted <ACH

F:31-31/Pomain: insulin ch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ::
             23 PAFVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDPQVGOVELGGGFGAGSLQPLAL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    insulin - Egyptian spiny mouse (tentative sequence)
C;Species: Acomys cahirinus (Egyptian spiny mouse)
C;Date: 13-Jul.1981 #sequence_revision 13-Jul-1981 #text_change 31-Mar-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        insulin precursor - jack bean (fragments)
NiAlternate names: hypoglycemic agent; plant insulin
C;Species: Canavalla ensiformis (jack bean)
C;Date: 07-Dec-1999 *sequence_revision 07-Dec-1999 *text_change 10-Dec-1999
C;Accession: B59151; A59151
                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Species: Cricetinae gen. sp. (hamster)
C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 16-Jul-1999
C;Accession: A91456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R;Neelon, F.A.; Delcher, H.K.; Steinman, H.; Lebovitz, H.E.
Fed. Proc. 32, 300, 1973
A;Title: Structure of hamster insulin: comparison with a tumor insulin.
A;Reference number: A91456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 FVNQHLCGSHLVEALYLVCGERGEFYTPKS-GIVDQCCTSICSLYQLENYCN 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: A91456
A; Molecule type: protein
A; Residues: 1-30; 31-51 < NNE>
C; Superfamily: insulin
C; Keywords: hormone; pancreas
F; 1-30/Domain: insulin chain B *status experimental < RCH>
F; 1-31/Domain: insulin chain B *status experimental < ACH>
F; 31-51/Domain: insulin chain A *status experimental < ACH>
F; 31-51/Domain: insulin chain A *status experimental < ACH>
F; 7-37, 19-50, 36-41/Disulfide bonds: *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 45.7%; Score 268.5; DB 1; Best Local Similarity 92.3%; Pred. No. 2.9e-21; Matches 48; Conservative 3; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            46.3%; Score 271.5; DB 1 94.2%; Pred. No. 1.4e-21; tive 2; Mismatches 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C:Accession: A01591
R:Buenzli, H.F.: Humbel, R.E.
Hoppe-Seyler's 2. Physiol. Chem. 353, 444-450, 1972
                                                                                                                                              83 EGSLQKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                    -----RGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 94.2
Matches 49: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                          insulin - hamster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 8
                                                                                                                                                                                                                                                                                                                       RESULT 7
```

ò

a

ð

```
C:Species: Balaenoptera borealis (sci whale)
C:Date: 13-U1-1981 #sequence_revision 13-U1-1981 #text_change 16-Jul-1999
C:Date: 13-U1-1981 #sequence_revision 13-U1-1981 #text_change 16-Jul-1999
C:Accession: A0158
R:Ishihara, Y.; Saito, T.; Ito, Y; Fujino, M.
Nature: 181, 1488-1469, 1958
A:Tille: Structure of sperm- and sei-whale insulins and their breakdow: by whale peps
A:Reference number: A93142
                                                                                                                                                                                                                                                                                                                                                                         0
insulin precursor - chimpanzee
C:Species: Pan troglodytes (cl. anzee)
C:Date: 04-Mar-1993 #sequence_revision 18-Nov-1994 #text_change 16-Jul 1999
C:Accession: A42179; S22058
R:Seino, S.; Bell, G.L.; Li, W.H.
Mol. Blol. Evol. 9, 193-203, 1992
A:Title: Sequences of primate insulin genes support the hypothesis of a slower rate as Reference number: A42179; MUID:92219953; PMID:1560757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25 FVNQHI.GGSHLVEALYLVCC 'RCFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Species: Capra aegagrus hircus (domestic goat)
C;Date: 13-Jul-1981 #sequence_revision 13-Jul-1981 #text_change 16-Jul-1999
C;Accession: A01586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Status: preliminary
A;Status: preliminary
A;Molecule type: DNA
A;Molecule type: DNA
A;Molecules: 1-110 <SEL>
A;Cross.references: EMBL:X61089; NID:q38251; PIDN:CAA43403.1; PID:q38252;
A;Note: sequence extracted from NCBI backbone (NCBIP:95067)
C;Genetics: 63.71
C;Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 FVNQHLCGSHLVEALYLVCGERGFFYTPKA-GIVEQCCASTCSLYQLENYCN 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Am. J. Med. 40, 662-666, 1966
A:Title: Species variation in the amino acid sequence of insulin.
A:Reference number: A90029; MUID:66160119; PMID:5949593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1:0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: protein
A; Mesdues: 1-30;31-51 <1SH>
C; Superfamily: insulin
C; Keywords: hormone: pancreas
C; Keywords: hormone: pancreas
F; 1-30, 31-51/Promain: insulin chain B *status experimental <BCH>
F; 1-31,71/Domain: insulin chain A *status experimental <ACH>
F; 31-51/Domain: insulin chain A *status experimental <ACH>
F; 31-37,19-50,36-41/Pisulfide bonds: *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    44.9%; Score 263.5; DB 1;
92.3%; Pred. No. 9.6e-21;
iive 0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 257; DB 2; L
Pred. No. 9.3e-21;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 56 FVNOHLCGSHLVEALYLVCGERGFFYTPKT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         85 SLOKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86 ----RGIVEQCCTSICSLYOLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         45.58;
60.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 92.3%;
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 60.5
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Accession: A01586
A; Molecule type: protein
A; Residues: 1-30; 31-51 <SMI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            insulin - sei whale
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Accession: A01582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     insulin - goat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Status: preliminary; translated from GB/EMBL/DDBJ
A; Molecule type: DNA
A; Status: preliminary; translated from GB/EMBL/DDBJ
A; Molecule type: DNA
A; Residues: 1-59,63-110 (RES)
A; Cross-references: GB:L15440; NID:g307071; PIDN:AAA59179.1; PID:g307072
R; Sieber, P.; Kamber, B.; Hattnann, A.; Joehl, A.; Riniker, B.; Rittel, W.
Helv. Chim. Acta 57, 2617-2621, 1974
A; Title: Totalsynthese von Humaninsulin unter gezielter Bildung der Disulfidbindungen.
A; Reference number: A91636; MuID:7507277; PMID:4443293
A; Note: article in German with English abstract
A; Note: article in German with English abstract
R; Naithani, V.K.
Hoppersyler s 2. Physiol. Chem. 354, 659-672, 1973
A; Title: The synthesis of C-peptide of human proinsulin.
A; Reference number: A91658; MuID:75040007; PMID:4803504
A; Contents: annotation; synthesis of residues 57-87
A; Title: Synthesis of the complete sequence of human proinsulin C-peptide and its [Glu-9
A; Gelger, R.; Jaeger, G.; Koeng, W.
Chem. Ber. 106, 2347-2352, 1973
A; Title: Synthesis of the complete sequence of human proinsulin C-peptide and its [Glu-9
A; Contents: annotation; synthesis of residues 57-87
B; Cohem. 13. 310, 869-874, 1995
A; Title: Squence requirements for proinsulin processing at the B-chain/C-peptide junctine A; Reference number: S98661; MuID:96031885; Marion certain annotation contents annotation con
                                J. Biol. Chem. 246, 1375-1386, 1971
A;Title: Studies on human proinsulin. Isolation and amino acid sequence of the human pan A;Reference number: A92075; MUID:71116410; PMID:5101771
A;Accession: A92075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: protein
A; Reddues: 57-87 cK09.
A; Residues: 57-87 cK09.
R; Lucassen, A.H.: Julier, C.; Beressl, J.P.; Boltard, C.; Froguel, P.; Lathrop, M.; Bell
Nature Genet. 4, 305-310, 1993
A; Title: Susceptibility to insulin dependent diabetes mellitus maps to a 4.1 kb segment
A; Reference number: I58114; MUID: 93364428; PMID: 9358440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A: Contents: annotation; site-directed mutagenesis study of proteolytic processing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----- 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               34;
                                                                                                                                                                                                                                                             A;Wolecule type: protein
A;Residues: 57-87 < CVES
R;Ko, A.: Smyth, D.G.; Markussen, J.: Sundby, F.
Eur. J. Blochem. 20, 190-199, 1971
Eur. J. Blochem. 20, 190-199, 1971
A;Title: Amino acid sequence of the C-peptide of human proinsulin.
A;Reference number: A91186: MUID:71257722; PMID:5560404
A;Accession: A91186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A/cone: Ubblins
A/cone: Ubblins
A/cone: Ubblins
A/cones references: GDB:119349; OMIM:176730
A/cones for Inpl5.5-11pl5.5
A/introns: 627
A/intr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Indels
```

Score 267; DB 1; Pred. No. 9.3e-21; 0; Mismatches 0

Match 45.5%; Local Similarity 60.5%; Nes 52; Conservative

Best Loc Matches

g ò a

A;Cene: GDB:INS A;Cross-references:

C; Genetics

56 FVNQHLCGSHLVEALYLVCGERGFFYTPKT--

SLOKRGIVEOCCTSICSLYOLENYCN 110 ----RGIVEQCCTSICSLYQLENYCN 107

> RESULT 11 A42179.

```
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ribanho, W.O.
J. Fac. Med. Baghdad 14, 16-28, 1972
A.Tille: The isolation and characterization of insulin of camel (Camelus dromedarius).
A;Reference number: A92782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ij
                                                                                                                                                                                                                                                 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    insulin precursor - pig
Cispecies: Sus scrofa domestica (domestic pig)
Cispecies: Annotation and scrope (domestic pig)
Cispecies: R.E.; Ellis, R.M.: Bromer, W.W.
Scrience 161, 165-167, 1968
Scrience 161, 165-167, 1968
A;Title: Porcine proinsulin: characterization and amino acid sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     insulin - Arabian camel (tentative sequence)
C:Species: Camelus dromedarius (Arabian camel)
C:Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 16-Jul-1999
C:Accession: A92782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                              1; Gaps
                                                                                                                                                                                                                                                                                               56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTFGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 51;
                                                                                                                                                                                           Length 51;
                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                             <ACH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C:Keywords: hormone; pancreas
F:1-30/Domain: insulin chain B #status experimental <BCH>
F:1-30, 11-51/Product: insulin #status experimental <MAT>
F:30, 31-51/Pomain: insulin chain A #status experimental <ACH
F:31-51/Pomain: insulin chain A #status experimental <ACH
F:7-37, 19-50, 36-41/Disulfide bonds: #status fredicted
C;Superfamily: insulin
C;Keywords: hormone; pancreas
F;1-30/Domain: insulin chain B *status experimental <BCH>
F;1-30,31-51/Product: insulin *status experimental <MAT>
F;31-51/Domain: insulin chain A *status experimental <ACH
F;31-51/20,36-41/Disulfide bonds: *status predicted
                                                                                                                                                                                        DB 1;
                                                                                                                                                                                  Score 263.5; DB 1;
Pred. No. 9.6e-21;
1; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             44.9%: Score 263.5; DB 1; 90.4%; Pred. No. 9.6e-21; tlve 1; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: protein
A; Residues: 1.84 <CH2>
R; Brown, H.; Sanger, F.; Kitai, R.
Blochem, J. 60, 556-565, 1955
A; Ittle: The structure of pig and sheep insulins.
A; Reference number: A90344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A,Accession: A01583
A;Molecule type: protein
A;Residues: 1-34, 'Q',36-84 <CHA>
R;Chance, R.E.
submitted to the Atlas, July 1970
A;Reference number: A94572
A;Accession: A94572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Molecule type: protein
A;Residues: 1-30;31-51 <BRO>
As;Snel, L.; Damgaard, L.; Damgaard, Horm. Metab. Res. 20, 476-480, 1988
                                                                                                                                                                                     Query Match
Best Local Similarity 90.4%;
Matches 47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
Best Local Similarity 90.4%
Matches 47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: protein
A; Residues: 1-30;31-51 <DAN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C:Superfamily: insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Accession: A92782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Accession: S16492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QQ
                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                     ò
```

```
A:Title: Proinsulin heterogeneity in pigs.

A:Reference number: A60835; MUID: #9032178; PMID: 3181865

A:Rocession: A60835; MUID: #9032178; PMID: 3181865

A:Molecule type: protein

A:Residues: 33-38.40-62 <SNE>

A:Rocession: B60835

A:Rocession: B60835

A:Residues: 33-62 <SN2>
A:Reference number: A90017

A:Title: Insulin. the structure in the crystal and its reflection in chemistry and bit A:Reference number: A90017

A:Contents: annotation; X-ray cry: Lallography, 1.9 angstroms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tus experimental <BCH>
                                                                                                                                                                                                                                                                                                                                                                                                           C; Superfamily: insulin
C; Keywords: hormone; pancreas
F; 1-30, 54-84/Product: insulin * : us experimental < BCH:
F; 1-30, 54-84/Product: insulin * : us experimental < WAT>
F; 13-53/Domain: connecting pepti * status experimental < R; 14-84/Domain: insulin chain A atus experimental < R; 17-70, 19-83, 69-74/Disulfide bo., d. * status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             44.8%; Score 263; DB 1; 60.7%; Pred. No. 1.8e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56 FVNQHLCGSHLVEALYLVCGERGFFYTPKT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Search completed: September 16, 2003, 12:40:35 Job time : 12.4903 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86 -- RGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OKRGIVEQCCTSICSLYQLENYCN 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 60.79
Matches 51; Conservative
```

```
GenCore version .1.6
Copyright (c) 1993 - 2003 · Ompugen Ltd.
```

OM protein - protein search, using sw model

September 16, 2003, 12:33:30; Search time 8.32685 Seconds (without alignments) 604.293 Million cell updates/sec Run on:

fitte: "Ds-09-423-100-6
Perfect score: 587
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 107

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

127863 seqs, 47026705 residues Searched:

127863 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt_41:* Database:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

No. Score Match Length DB ID Description 273.5	Result		& Query			SUMMARIES	
1 273.5 46.6 51 INS_EREMA P01312 balaence polsase cerebals 2 273.5 46.6 51 INS_EREMA P01316 elephase p30406 macaca p3134 dcomys 2 26.8 45.7 110 INS_MACFA P013124 accomys 5 26.8 45.7 51 INS_AMCFA P013124 accomys 6 45.3 110 INS_AMCFA P013124 accomys P013124 accomys 7 45.5 110 INS_AMCFA P01310 balaenc P01310 balaenc 8 266.5 44.9 51 INS_CAMPR P01314 balaenc 9 265.5 44.9 51 INS_CAMPR P01319 caper p01315 camelus 1 263.6 44.9 51 INS_CAMPR P01319 caper p01315 camelus 2 26.5 44.6 110 INS_CAMPR P01311 caper p01315 caper p01315 caper p1321 caper p01315 caper p1321 caper p01315 caper p1321	NO.	Score	Match		DB	qı	1
2 273.5 46.6 51 INS_ELEMA P01316 elephas 3 273 46.5 110 INS_CRAE P30407 cercophas 2 273 46.5 110 INS_CARAE P30407 cercophas 2 26.5 110 INS_AACCA P01324 acomys 2 26.7 45.5 110 INS_AACCA P01324 acomys 2 26.4 4.9 110 INS_CAMPR P30410 pan troperation of the composition of the compos	٦	273.5	9	51	-	INS_BALPH	
3 273 46.5 110 INS_CERAE P130407 cercopi 4 273 46.5 110 INS_ACCA P01324 Accomys 267 45.5 110 INS_ACCA P01330 homo se 266 45.5 110 INS_ACCA P01330 homo se 266 45.5 110 INS_ACCA P01330 homo se 266.5 44.9 51 INS_ACCA P01334 balach 263.5 44.9 51 INS_ACCA P01334 balach 263.6 44.9 51 INS_ACAPH P01319 capral 263.5 44.9 51 INS_ACAPH P01319 capral 263.6 44.6 10 INS_ACAPH P01319 capral 262.5 44.6 110 INS_ACAPH P01311 capral 262.4 4.6 110 INS_ACAPH P01311 capral 263.5 4.4 10 INS_ACAPH	7	273.5	9	51	7	INS_ELEMA	
4 273 46.5 110 I INS_MACFA P0130406 macaca 5 46.5 110 I INS_ACCCA P01304 box ownys 7 45.5 110 I INS_PERTR P01308 box ownys 8 263 45.5 110 I INS_PERTR P01314 box ownys 9 263.5 44.9 51 I INS_CAMDR P01313 box own own 0 263.5 44.9 51 I INS_CAMDR P01313 box own own 1 26.5 44.9 51 I INS_CAMPR P01313 box own own 2 26.3 44.8 100 I INS_CAMPR P01313 box own 2 26.5 44.9 51 INS_CAMPR P01313 box own 2 26.5 44.6 110 I INS_CAMPR P01313 box own 5 46.6 110 I INS_CAMPR P01311 box own P01321 can is for expression 6 26.5 43.8 110 I INS_CAMPR P01321 box own 7 43.8 10 I	٣	273	9	110	П	INS_CERAE	
5 268.5 45.7 51 INS_ACOCA P01324 acomys 6 257 45.5 110 INS_ABME P01340 B hom ose 2 26 45.3 110 INS_ABME P01314 balaence 9 263.5 44.9 51 INS_CAMDR P01314 balaence 9 263.5 44.9 51 INS_CAMDR P01319 capra P 1 263.5 44.9 51 INS_CAMDR P01319 capra P 2 263.5 44.9 51 INS_CAMDR P01319 capra P 2 263.5 44.9 51 INS_CAMDR P01311 balaence 2 263.5 44.9 51 INS_CAMDR P01311 balaence 2 263.6 44.7 51 INS_CAMDR P01311 balaence 4 265.5 44.7 10 INS_CAMDR P01311 balaence 5 260.4 10 INS_CAMDR P01311 balaence P01311 balaence 6 260.4 10 INS	4	273	9	110		INS_MACFA	macaca
6 267 45.5 110 INS_HUMAN P01308 homo 8 266 45.5 110 INS_SPETR P91410 pan t 9 263.5 44.9 51 INS_ALBO P01313 sperm 9 263.5 44.9 51 INS_CAMDR P01319 cancel 1 263.5 44.9 51 INS_CAMDR P01319 cancel 2 263.5 44.9 51 INS_CAMPR P01319 cancel 2 263.5 44.9 10 INS_CAMPR P01319 cancel 5 26.2 44.6 110 INS_CANTR P01311 cancel 5 26.4 110 INS_CATRA P01313 cancel 6 26.4 10 INS_CATRA P01331 cancel 7 258.5 43.6 10 INS_CATRA P01331 cancel 8 10 INS_CATRA P01313 cancel P01313 cancel 9 257 43.8 10 INS_CATRA P01313 cancel <t< td=""><td>ស</td><td>Ω</td><td>δ.</td><td>51</td><td>-</td><td>INS_ACOCA</td><td>acomys</td></t<>	ស	Ω	δ.	51	-	INS_ACOCA	acomys
7 267 45.5 110 I INS_PANTR P30410 ppan t 9 263.6 45.3 110 I INS_PATR 991343 sperm 9 263.5 44.9 51 I INS_CAMDR P01314 ball 1 263.5 44.9 51 I INS_CAMPR P01319 cancel 2 263 44.8 108 I INS_ELCA P01319 cancel 2 263 44.8 100 I INS_CANPA P01313 cancel 5 2.6 44.6 110 I INS_CANPA P01319 cancel 5 2.6 44.6 110 I INS_CANPA P01311 cancel 5 2.6 44.6 110 I INS_CANPA P01311 cancel 6 2.6 44.6 110 I INS_CANPA P01311 cancel 6 2.6 43.6 10 I INS_CANPA P01314 p01314 8 1.0 1 INS_CANPA	ø	267	Š.	110	Н	INS_HUMAN	
8 266 45.3 110 1 NS_SPETR O99xi3 sperm 9 263.5 44.9 51 1 NS_CAPHI P01319 cancel 9 263.5 44.9 51 1 NS_CAPHI P01319 cancel 1 263.5 44.9 51 1 NS_CAPHI P01319 cancel 2 263.5 44.8 108 1 NS_CAPHI P01319 cancel 4 262.5 44.6 100 1 NS_CAPHI P01319 cancel 5 263.4 8 100 1 NS_CAPHI P01319 cancel 4 262.5 44.0 105 1 NS_CAPHI P01319 cancel 5 260.4 44.0 105 1 NS_CANTA P01317 cancel 6 260.5 43.7 1 NS_CANTA P01317 p01321 cancel 9 257.4 43.8 1 NS_CANTA P01310 p01310 p01310 1 1 NS_CASS 43.5	7	267		110	٦	INS_PANTR	0
9 263.5 44.9 51 INS_BALBO P01314 balac 0 263.5 44.9 51 INS_CAMDR P010120 camcel 1 263.5 44.9 51 INS_CAMDR P01319 capca 2 263 44.8 108 INS_FELCA P01315 capca 3 2.62.5 44.6 110 INS_CARFA P01311 capca 5 2.62.5 44.6 110 INS_CARTA P01321 capca 6 2.63.5 44.6 110 INS_CARTA P01313 capca 7 2.84.6 110 INS_CARTA P01313 capca 8 2.64.6 100 INS_CARTA P01313 capca 9 2.57 43.8 110 INS_CARTA P01313 capca 1 2.54.9 10 INS_CARTA P01313 capca P01313 capca 1 2.55.5 43.5 2.17 SOMA_HUNAN P01310 capca 1 2.55.5 43.5 2.17 SOMA_PARTA P01310 c	α	266	Š	110	٦	INS_SPETR	3
263.5 44.9 51 INS_CAMOR P01130 cancel 2 263 44.9 51 INS_CAPHI P011319 capra 2 263 44.9 10 INS_FELCA P01311 capra 2 263 44.9 10 INS_FELCA P01311 capra 5 262 44.6 10 INS_CANPA P01313 capra 5 260 44.3 11 INS_CANPA P01313 capra 6 260 44.3 110 INS_CANPA P01313 capra 6 260 44.3 110 INS_CANPA P01313 capra 7 251 43.8 108 INS_CANPA P01313 bost P01317 capra 9 256.5 43.5 217 SOMA_HUMAN P01241 homo P01241 homo P01241 homo 1 255.5 43.5 217 SOMA_PMAT P01310 capra P01310 capra 2 255.5 43.4 105 INS_CHIR P01310 capra 2	σ	263.5	4	5.1		INS_BALBO	4
1 263.5 44.9 51 1 INS_CAPHI P01319 capra 2 263 44.8 108 1 INS_RABIT P01319 capra 4 262.5 44.7 51 1 INS_RABIT P01311 caprs 5 263 44.6 110 1 INS_CANFA P01313 caprs 6 260 44.0 105 1 INS_DADMA P01313 caprs 7 258.5 44.0 105 1 INS_DDMA P01313 caprs 9 256.5 43.7 51 1 INS_DDMA P01313 caprs 1 255.5 43.5 217 SOMA_MCHU P01324 homo 2 255.5 43.5 217 SOMA_MCHU P01324 homo 2 255.5 43.5 217 SOMA_MCHU P01324 homo 2 255.5 43.4 105 I INS_HORE P01318 ovis 4 24.5 217 SOMA_MCHU P01325 caprs P01327 chird 4 24.5 43.4 105	10	263.5	4.	51	-	INS_CAMDR	0
2 26.3 44.8 108 1 INS_PIG PO1315 sus. s 26.2.5 44.8 110 1 INS_FELCA PO6506 PO1311 OFFCL 26.2.5 44.6 110 1 INS_CARFA PO6506 PO1321 OFFCC 26.2.6 44.6 110 1 INS_CARFA PO1331 CTICE 26.2.6 44.0 105 1 INS_BOVIN PO1331 CTICE 25.5 43.8 110 1 INS_BOVIN PO1333 CTICE 26.5 43.7 51 1 INS_BOVIN PO1333 CTICE 26.5 43.5 21.7 SOMA_HUMAN PO1241 homo 25.5 43.5 21.7 SOMA_PMCMU PO1343 DO34 25.5 43.5 21.7 SOMA_PMCMU PO1341 PO134 25.5 5 43.5 21.7 SOMA_PMCMU PO1341 PO134 25.5 5 43.5 21.7 SOMA_PMCMU PO134 25.5 5 43.5 21.7 SOMA_PMCMU PO13393 macac 25.5 5 42.9 86 1 INS_CHEEP PO1331 CTICE 25.5 5 42.9 86 1 INS_CHEEP PO1331 CTICE 25.5 5 42.9 86 1 INS_CHEEP PO1335 CHICE 25.5 5 42.9 86 1 INS_CHEEP PO1335 CHICE 25.5 5 42.9 86 1 INS_CHEEP PO1335 CHICE 25.5 5 42.9 86 1 INS_CHEEP PO1335 macac 25.5 5 42.9 86 1 INS_CHEEP PO1335 macac 25.5 6 42.4 110 1 INS_CHEEP PO1325 CHICE 25.5 6 42.4 110 1 INS_CHEEP PO1325 CHICE 25.5 6 42.4 110 1 INS_CHEEP PO1333 FATCU 25.5 6 42.4 110 1 INS_CHEEP PO1333 FATCU 25.6 42.3 1 INS_CHEEP PO1333 FATCU 25.6 42.3 1 INS_CHEEP PO1333 FATCU 25.7 43.8 51 INS_CHEEP PO1333 FATCU 25.8 54.8 54.3 1 INS_CHEEP PO1333 FATCU 25.8 54.8 54.8 1 INS_CHEEP PO1333	11	263.5	4	51	-	INS_CAPHI	3 capra
3 263 44.8 110 1 NS_FELCA P06306 Felis 5 44.6 130 1 NS_FELCA P06306 Felis 5 44.6 130 1 NS_CANFA P01321 canis 6 26.0 44.6 130 1 NS_CANFA P01313 canis 6 26.5 44.6 105 1 NS_CANTA P01313 bost p01317 bost 9 25.7 43.8 106 1 NS_CANTA P10604 acus p01317 bost p01241 bost bost bost p1317 bost bost p1318 bost	12	263	4	108	~	INS_PIG	
4 262.5 44.7 51 INS_EECA P06306 Felis 5 262 44.6 110 INS_CRICO P01313 Cince 7 256.5 44.6 105 INS_BOVIN P01313 Cince 7 256.5 44.0 105 INS_BOVIN P01313 Cince 9 257 43.8 108 INS_DIDMA P01313 Cince 1 255.5 43.7 51 INS_DIDMA P01310 didel 1 255.5 43.5 217 SOMA_MCMU P33093 macac 2 255.5 43.5 217 SOMA_PANTR P01310 didel 4 24.5 217 SOMA_PANTR P01310 equs 4 24.5 43.4 105 INS_HORE P01310 equs 5 21.7 SOMA_PANTR P01312 equs P01325 mis 4 24.5 40.8 INS_HORE P01312 equs 5 42.6 51 INS_HORE P01325 mis 6 24.9	13		4.	110	-	INS_RABIT	oryct
5 262 44.6 110 INS_CANFA P01321 canis familiar 6 260 44.0 110 INS_BOVIN P01313 cricetulus 8 257 43.8 108 INS_AOTR P01317 bos taurus 9 257 43.8 108 INS_AOTR P01604 actus triv 9 256.5 43.7 11 INS_ADIDMA P01841 home sapie 1 255.5 43.5 217 SOMA_HUMAN P01241 home sapie 2 255.5 43.5 217 SOMA_HUMAN P01341 home sapie 2 255.5 43.5 217 SOMA_HUMAN P01341 home sapie 4 254.5 43.4 105 INS_SHEEP P01310 enis arises 5 43.6 217 SOMA_HUMAN P01318 evis arises 4 25.6 43.4 105 INS_HEEP P01318 evis arises 5 24.5 43.4 105 INS_LHEEP P01325 min muscull 7 250 42.6	7.4	o	₹.	51	7	INS_FELCA	tel is
6 26 44.3 110 1 INS_CRILO P01313 cricetlus 2 5 44.0 106 1 INS_PROB P01313 cricetlus 2 5 43.6 108 1 INS_PROB P01504 docus taurus 2 5 43.6 108 1 INS_PROB P0654 docus taurus 2 5 43.6 10 1 INS_PROB P06587 psammonys 2 5 5.5 43.5 217 1 SOMA_HUMAN P01241 homo sapie 2 2 5 5.5 43.5 217 1 SOMA_PMCMU P53709 macaca mul 2 2 5 5.5 43.5 217 1 SOMA_PMCMU P53709 macaca mul 2 2 5 5 5 5 5 1 1 INS_HEEP P01318 ovis aries 2 5 5 6 2 9 8 1 INS_HEEP P01318 ovis aries 2 5 6 2 9 8 1 INS_HORSE P01327 chinchilla 2 5 6 42.6 108 1 INS_HORSE P01327 chinchilla 2 49 42.4 110 1 INS_HORSE P01327 chinchilla 2 49 42.4 217 1 SOMA_CALJA 2 49 42.4 217 1 SOMA_CALJA 2 6 42.4 217 1 SOMA_CALJA 2 6 42.4 217 1 SOMA_SAIBB P58343 saimiri bot 2 6 42.4 217 1 SOMA_SAIBB P01325 mus muscul 2 6 42.4 217 1 SOMA_SAIBB P01325 mus muscul 2 6 42.4 217 1 SOMA_SAIBB P01325 mus muscul 2 6 42.4 217 1 SOMA_SAIBB P01325 mus muscul 2 6 42.4 217 1 SOMA_SAIBB P01325 mus muscul 2 6 42.4 217 1 SOMA_SAIBB P01325 mus muscul 2 6 42.5 1 INS_MOUSE P01323 rattus nor 2 6 6 7 7 8 7 8 8 8 8 8 8 8 8 8 9 8 9 8 9 8 9	15	262	4	110	~	INS_CANFA	canis
7 258.5 44.0 105 1 INS_BOVIN P01317 bos taurus 8 257 43.8 108 1 INS_PSAOTR P0664 Actual Liva 9 257 43.8 100 1 INS_PSAOTR P0654 P0654 P0664 P0666	٠	260	4	110	7	INS_CRILO	_
8 257 43.8 108 1 INS_AOTTR P10664 actus triv 9 256.5 43.8 110 1 INS_ADIDMA Q62587 psammomys 1 255.5 43.7 1 INS_ADIDMA P01241 homo sapie 255.5 43.5 217 1 SOMA_HUMAN P01241 homo sapie 255.5 43.5 217 1 SOMA_PARTR P01241 homo sapie 255.5 43.4 105 1 INS_SHEEP P01310 P01310 4 254.5 42.8 51 1 INS_CHIBR P01316 P01316 5 42.6 108 1 INS_MOUSE P01325 maccan muscul 7 250 42.4 217 1 SOMA_CALJA P01327 Chinchilla 8 249 42.4 217 1 SOMA_CALJA P0933 actition muscul 9 249 42.4 217 1 SOMA_CALJA P0933 caltition in 1 249 42.4 217 1 SOMA_CALJA P0933 caltition in	^	258.5	4.	105	٦	INS_BOVIN	_
9 25.7 43.8 110 1 INS_PSAOB Q65287 psammonys of 25.5 43.5 217 1 SOMA_MACMU P51010 didelphis P01241 homo sapie 255.5 43.5 217 1 SOMA_MACMU P537093 macaca mul 255.5 43.5 217 1 SOMA_MACMU P59756 pan troglo 255.5 43.6 108 1 INS_HEEP P01318 ovis arises 252 42.9 86 1 INS_HORSE P013127 chinchilla 251.5 42.8 51 1 INS_HOUSE P01327 chinchilla 250 42.4 110 1 INSI_MOUSE P01325 mus muscul 249 42.4 217 1 SOMA_CALJA Q94343 saimiri bot 249 42.4 217 1 SOMA_SAIBB P58343 saimiri bot 249 42.3 51 1 INS_ANSAN P01325 mus muscul 248 42.2 110 1 INSI_MOUSE P01325 mus muscul 248 42.2 110 1 INSI_MOUSE P01323 rattus nor 249 42.2 110 1 INSI_MOUSE P01323 rattus nor 248 42.3 110 1 INSI_MOUSE P01323	8	257	Ψ.	108	-	INS_AOTTR	-
0 256.5 43.7 51 INS_DIDWA P18109 didelphis 1 255.5 43.5 217 1 SOMA_HUMAN P01241 homo sapie	5	257	3.	110	~	INS_PSAOB	psammomys
1 255.5 43.5 217 1 SOMA_HUNAN P01241 2 255.5 43.5 217 1 SOMA_MACMU P33093 4 255.5 43.4 105 1 INS_SHEEP P01318 5 24.5 42.9 86 1 INS_HORE P01318 5 25.2 42.9 86 1 INS_HORE P01310 7 250 42.6 108 1 INS_LABR P01325 8 42.4 217 1 SOMA_CALJA P01325 0 249 42.4 217 1 SOMA_SAIBB P5843 1 248.5 42.3 21 1 SOMA_SAIBB P01322 249 42.4 217 1 SOMA_SAIBB P5843 1 248.5 42.3 51 INS_ASAIBB P01322 248 42.2 10 INS_ASAIBB P01323 248 42.2 10<	0	256.5	ξ.	51	7	INS_DIDMA	didelphis
2 255.5 43.5 217 1 SOMA_MACHU P33093 9 255.5 43.5 217 1 SOMA_PRNTR P58756 9 255.5 43.5 217 1 SOMA_PRNTR P58756 9 25.2 42.9 86 1 INS_HERP P601318 9 251.5 42.9 86 1 INS_HORSE P01310 9 249 42.4 110 1 INSI_MAT P01325 9 249 42.4 110 1 INSI_MAT P01325 9 249 42.4 217 1 SOMA_SAIBB P58343 9 249 42.4 217 1 SOMA_SAIBB P58343 9 249 42.4 217 1 SOMA_SAIBB P63343 9 249 42.3 51 1 INS_NAR P01325 248 42.2 110 1 INS_NAR P01325 9 248 42.2 110 1 INS_NAR P01325 9 248 42.2 110 1 INS_NAR P01325 9 248 42.2 110 1 INS_RAS	~	255.5		217	H	SOMA_HUMAN	
3 255.5 43.5 217 1 SOMA_PANTR P58756 4 254.5 43.4 105 1 INS_SHEEP P01318 2 42.9 86 1 INS_CHIBR P01319 7 250 42.6 108 I INS_CHIBR P01327 7 249 42.4 110 I INSI_RAT P01325 9 249 42.4 217 1 SOMA_SAIBB P58343 1 248.5 42.3 1 INS_ANSAN P07454 1 248.5 42.3 1 INS_ANSAN P07454 248.5 42.2 110 I INS2_RAT P01325 248.5 42.2 110 I INS_ANSAN P07454 248.5 42.2 110 I INS2_RAT P01323	~	255.5		217	7	SOMA_MACMU	-
4 254.5 43.4 105 1 INS_SHEEP P01318 5 25.2 42.9 86 1 INS_HORS P01310 7 256 42.6 108 1 INS_MOSE P01325 8 42.4 110 1 INS_LMOSE P01325 9 249 42.4 217 1 SOMA_CALJA P01325 0 249 42.4 217 1 SOMA_SAIBB P5844 1 248.5 42.3 51 INS_ANSAN P07454 1 248.5 42.3 51 INS_ANSAN P07454 248 42.2 110 I NS2_RAT P01328 248 42.2 110 I NS2_RAT P01328 248 42.2 110 I NS2_RAT P01323	~	255.5	ω,	217	-	SOMA_PANTR	
5 252 42.9 86 1 INS_HORSE P01310 6 251.5 42.8 51 1 INS_CHIBR P01327 7 249 42.4 10 1 INSI_MOUSE P01327 9 249 42.4 217 1 SOMA_CALJA P01325 9 249 42.4 217 1 SOMA_SAIBB P58343 1 248.5 42.3 51 1 INS_ANSAN P01325 2 248 42.2 110 1 INS_ANSAN P01324 3 248 42.2 110 1 INS_ANSAN P01323 3 248 42.2 110 1 INS_ANSAN P01323	4	254.5	6	105		INS_SHEEP	-
6 251.5 42.8 51 1 INS_CHIBR P01327 7 250 42.6 108 1 INSI_MOUSE P01325 8 42.4 110 1 INSI_MOUSE P01325 9 249 42.4 217 1 SOMA_CALJA P099mb3 0 249 42.4 217 1 SOMA_SAIBB P58343 1 248.5 42.3 51 1 INS_ANSAN P07454 2 248 42.2 110 1 INSZ_NASH P01328 3 248 42.2 110 1 INSZ_NASH P01328	2	252	ä	86	~	INS_HORSE	
7 250 42.6 108 1 INS1_MOUSE P01325 9 249 42.4 110 1 INS1_RAT P01325 9 249 42.4 217 1 SOMA_CALLA 099mb3 2 249 42.4 217 1 SOMA_SAIBB P58443 1 248.5 42.3 51 1 INS_ANSAN P07454 9 42.2 110 1 INS_ANSAN P07454 9 13 51 1 INS_ANSAN P07454 9 13 51 1 INS_ANSAN P07454 9 13 51 1 INS2_RAT P01323 1 248 42.2 110 1 INS2_RAT P01323	56	S	ä	51	~	INS_CHIBR	
8 249 42.4 110 I INSI_RAT P01322 9 249 42.4 217 I SOMA_CALJA 09gmb3 0 249 42.4 217 I SOMA_SALBB P58343 1 248.5 42.3 51 I INS_MOSH P01328 2 248 42.2 110 I INS2_MOUSE P01326 3 248 42.2 110 I INS2_RAT P01323	27	250	ς.	108	-	INS1_MOUSE	_
9 249 42.4 217 1 SOMA_CALJA 099mb3 3 248 42.4 217 1 SOMA_SAIBB P58343 P58343 1 248 5 42.3 51 1 INSZ_MOSSN P01324 5 248 42.2 110 1 INSZ_RAT P01323 3 248 42.2 110 1 INSZ_RAT P01323	78	249	ä	110	-	INSl_RAT	٠.
0 249 42.4 217 1 SOMA_SAIBB P58343 1 248.5 42.3 51 1 INS_ANSAN P07454 2 248 42.2 110 1 INS2_MOUSE P01325 3 248 42.2 110 1 INS2_RAT P01323	53	249	5	217	٦	SOMA_CALJA	~
1 248.5 42.3 51 INS_ANSAN P07454. 2 248 42.2 110 I INSZ_MOUSE P01326. 3 248 42.2 110 I INSZ_RAT P01323	30	249	4	217	٦	SOMA_SAIBB	_
2 248 42.2 110 1 INS2_MOUSE P01326:3 248 42.2 110 1 INS2_RAT P01323	31	248.5	÷	51	-	INS_ANSAN	_
3 248 42.2 110 1 INS2_RAT P01323 rattus	32	248	ς.	110	٦	INS2_MOUSE	
	33	248		110	_	INS2_RAT	323 rattus

P81423 acipenser g P51463 selasphorus	P31887 trachemys s P01332 gallus gall P58757 pan troglod	Q9tqy7 ornithorhyn P01333 anas platyr P12703 alligator m	P09476 lepisosteus P12708 zaocys dhum P01242 homo sapien
INS_ACIGU INS_SELRF INS_UNCCOP	INS_TRASC INS_CHICK SOM2_PANTR	INS_ORNAN INS_ANAPL INS_ALLMI	INS_LEPSP INS_ZAODH SOM2_HUMAN
52 103	51 107 217	518	52 51 217
41.9	40.8 40.8	40.1 39.8 39.4	38. 4.08. 4.08.
246 245	244.5 239.5 236	235.5 233.5 231.5	231 228.5 228
4.50	38 38 30	4 4 4 0 4 2	4 4 4 6 4 8

ALIGNMENTS

	and:	eakdown by	CON. IT ACIDS AND PHOSPHATE (ED BY TWO	
AA. e) iate)	INS. Balaenoptera physalus (Finback whale) (Common rorqual), and Physeter catodon (Sperm whale) (Physeter macrocephalus). Bukaryotas Medazoa: Chordata: Craniata; Vertebrata: Euteleostomn Mammalia: Eutheria: Cetartiodactyla: Cetacea: Mysticeti; Balaenopteridae: Balaenoptera. MCBL_TaxID=9770, 975; PARTIAL SEQUENCE. SPECIES-B.Physalus; Hama H., Titani K., Sakaki S., Narita K.; The amino acid sequence in fin-whale insulin."; The amino acid sequence in fin-whale insulin.";	s and their breakdown by	IES-P.catodon; 1ES-P.catodon; 1ES-P.Catodon;	relax. ose metabolism. INSULIN B CHAIN. INTERCHAIN. INTERCHAIN. 9007B514691A7CDD CRC64;
51 AV update n upda	Cetac Cetac Cetac Getac Getac	o M.; nsulin	956). D GLUC CNOSACI CLIVER N AND	abolism. B CHAIN A CHAIN. AIN.
PRT; 51 AA. ed) sequence update) annotation update)	ack whale, (Physia) Cranial odactyla; cra. Cranial odactyla; cra. cra. cra. cra. cra. cra. cra. cra.	Y., Pujine si-whale is	Naughton M.A.: insulin.; 198 (65:427-438 (195 65:427-438 (195 48)) ABILITY TO MON TERRESTER GLYOD, SENTHESIS IN L. OF A B CHAIN I: Secreted. TO THE INSULIN	GF/relax. 1. 1.ucose metabo INSULIN B (INSULIN B (INSULIN B (INTERCHAIN INTERCHAIN) INTERCHAIN (INTERCHAIN) INTERCH
aNDARD; 01, Creat 01, Last 34, Last	dlus (Finh (Sperm wha a: Chordat a: Ctarri Balaenopte 9755: .: Sakaki .: Sakaki	, o T., Ito rm- and se 469(1958).	CIRS-P. catodon; ris J. I. Sanger F., Naughton M.A.; ectes differences in insulin.; h. Blochem. Blochbys. 65:427-438(1956). FUNCTION: INSULIN DECREASES BLOOD CLU INCREASES CELL PERMEABILITY TO MONOSA FAITY ACIDS. IT ACCELERANCES GIYCOLYSI CYCLE, AND GLYCOGEN SYNTHESIS IN LIVE SUBGNIT: HETERODIMER OF A B CHAIN AND DISULETDE BONDS. SUBCELLULAR LOCATION: Secreted. SIMILARITY: BELONGS TO THE INSULIN/IG	142; INWHP. 1317; IAPH. ; IPRO4825; Ins/IGF/relax. PS00262; INSULIN; 1. PS00262; INSULIN; 1. Ramily; Hormone; Glucose metabolism. 30 31 INSULIN B CHAIN 30 31 INSULIN A CHAIN 7 37 INTERCHAIN. 19 50 INTERCHAIN. 36 41 51 AA; 5766 MW; 9007B514691A7CD
(Re (Re	a phys todon utheri idae; 9770, 9770, UENCE. hysalu tani K	atodon , Sait of spe n."; 1468-1	atodon Sang fferen em Bi N: INS N: INS CIDS: CIDS: HETE HETE ULAR L	; inwhir. ; inwh
JUT 1 INS_BALPH INS_BALPH P01312; 21-JUL-1986 21-JUL-1986 01-OCT-1996	INS. Balaenoptera physalus (Finback whale) Physeter catodon (Sperm whale) (Physeter bukaryota; Medazoa; Chordata; Craniata Mammalia; Eutheria; Cetartiodactyla; C Balaenopteridae; Balaenoptera. NCBI_TaxID=9770, 9755; NI] PARTIAL SEQUENCE. SPECIES-B. Physalus; Hama H., Titani K., Sakaki S., Narita The amino acid sequence in fin whale J. Biochem. 56:285-293(1964)	SEQUENCE. SPECIES-P. catodon; Ishihara Y., Saito T., Ito Y., Fujino M.; "Structure of sperm- and sel-whale insulins whale pepsin."; Nature 181:1468-1469(1958). SEQUENCE.	SPECIES-P. catodoon; Horris J. Sanger F., "Species differences in Arch. Blochem. Blochbys FUNCTION: INSULIN D INCREASES CELL PERMI FATTY ACIUS. IT ACC. CYCLE, AND GLYCOGEN SUBUNIT: HETERODIME! SUBCELLULAR LOCATION: SUBCELLULAR LOCATION: SUBCELLULAR LOCATION: SUMILARITY: BELONGS	PIR, A3142; INNHE. HSSP; D01317; IAPH. HSSP; D01317; IAPH. InterPo; IRROMORB15; Ins/IGF/relax SMART; SM00078; IIGF; 1. PROSITE; PS00262; INSULIN; 1. Insulin family; Hormone; Glucose m CHAIN 30 31 INSUL NON_CONS 30 31 INSUL NON_CONS 30 31 INSUL DISULEID 7 37 INTERP DISULFID 19 50 INTERP SEQUENCE 51 AA; 5766 MM; 90078!
S SI	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RP RT RT RL RP	00000000000000000000000000000000000000	DR DR DR FT FT FT FT SO

```
Cercopithecinae; Cercopithecus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                              monkeys.
                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loca
Matches
  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25 E E E E E
                              Gaps
                                                                                                                                                                                                                                                           Cercopithecus aethiops (Green monkey) (Grivet).
Eukaryota, Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; ?utheria; Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYOLENYCN 107
                                                56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                            Eukāryota; Metazoa; Chordata; Crāniata; Vertebrāta; Buteleostomi;
Mammalia; Eutheria; Proboscidea; Elephantidae; Elephas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 FVNQHLCGSHLVEALYLVGERGFFYTPKT-GIVEQCCTGVCSLYQLENYCN 51
                                                          1 FVNQHLCGSHLVEALYLVCGERGFFYTPRA-GIVEQCCTSICSLYQLENYCN 51
                                                                                                                                                                                                                                                                                                                                                   LI
                              1;
                                                                                                                                                                                                                                                                                                                                                 -I- MISCELLANEOUS: THE SPECIES OF ELEPHANT IS NOT GIVEN, BUT NOST PROBABLY THE INDIAN ELEPHANI (ELEPHAS MAXIMUS).
-I- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
HSSP; P01308; IAIO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 273.5; DB 1; Length 51;
Pred. No. 1.6e-22;
           Length 51;
         Query Match 46.6%; Score 273.5; DB 1; Length Ebest Local Similarity 96.2%; Pred. No. 1.6e-22; Matches 50; Conservative 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9007B50CDB457D6D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INS_CERAE STANDARD; PRT; 110 AA. P30407; P01309; 01-APR-1993 (Rel. 25, Created) 01-APR-1993 (Rel. 25, Last sequence update) 01-FEB-1996 (Rel. 33, Last annotation update)
                                                                                                                                    21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                             INSULIN B CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                               INSULIN A CHAIN.
INTERCHAIN.
                                                                                                                  51 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                     Insulin family: Hormone; Glucose metabolism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                     InterPro: IPR004825: Ins/IGF/relax.
SMART: SM00078: IlGF: 1.
PROSITE: PS00262; INSULIN: 1.
                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                         -1- SUBCELLULAR LOCATION: Secreted
                                                                                                                                                                                     Elephas maximus (Indian elephant).
                                                                                                                                                                                                                                           MEDLINE-66160119; PubMed-5949593;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       46.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5752 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
les 49; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          36
51 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Insulin precursor.
                                                                                                                                                                                                              NCBI_TaxID-9783;
                                                                                                                                                                                                                                                     Smith L.F.;
                                                                                                                  INS_ELEMA
P01316;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
DISULFID
SEQUENCE
                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                      NON_CONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                   Insulin.
                                                                                                RESULT 2
INS_ELEMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INS_CERAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                 ð
                                                                   g
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bioinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for connercial entities requires a license afterement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23 PAFVNQHLCGSHLVEALYLVCGERGFFYTPKTRREAEDPQVGQVELGGGPGAGSLQPLAL 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                    Peterson J.D., Nehrlich S., Oyer P.E., Steiner D.F., ^{\circ} *Determination of the amino acid sequence of the monkey, sheep, and dog proinsulin C-peptides by a semi-micro Edman degradation

    Biol. Chem. 247:4866-4871(1972).
    FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. 17
INCREASES CELL PERMERBILITY TO MONOSACCHARIDES. AMINO ACIOS AND
FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE
CYCLE, AND GLYCOOGEN SYNTHESIS IN LIVER.
    SUBGNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34;
                                                                                     MEDLINE-92219953; PubMed-1560757:
Seino S., Bell G.I., Li W.;
"Sequences of primate insulin genes support the hypothesis of
slower rate of molecular evolution in humans and apes than in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -i. SUB-FELULAR LOCATION: Serreted.
-i. SIMILARITY: HELONGS TO TI : INSULIN/IGF/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    54 PRFVNQHLCGSHLVEALYLVCGERGFFYTPKT--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12019 MW: 95A1F54BE7H247F9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                se metabolism; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   46.5%; Score 273; DB 1;
60.2%; Pred. No. 4.1e-22;
tive 0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INS_MACFA STANDARD; PRT; 110 AA. P30406; P01309; 1-JUL-1986 (Rel. 01, Created) 13-AuG-1987 (Rel. 05, Last sequence update) 01-FEB-1996 (Rel. 33, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C PEPTIDE,
INSULIN A CHAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INSULIN B CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83 EGSLOKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           86 -----RGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INT ERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro IPR004825; Ins/ICF/relax. Pfam; Pr 1049; Insulin; 1. SMART; SM00078; ILGF; 1. PROSITE; PS00262; INSULIN: 1. Insulin family; Hormone; Gluc se me
                                                                                                                                                                                                                                                                                                            SEQUENCE OF 57-87.
MEDLINE=72258016; Pubmed-4626369;
                                                                                                                                                                                                                                                 Mol. Blol. Evol. 9:193-203(1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; x61092; CAA43405.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    110
96
109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR; B42179; B42179.
HSSP; P01308; 1AIO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISTUFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11C AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
les 53; Conserv
                                                              SEQUENCE FROM N.A.
NCBI_TaxID-9534;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    procedure."
```

 \sim

Page

```
Mammalia; Eutheria; Rode:
NCBL_TaxID=10068;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                 51 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                         HSSP; P01308; 1TYM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID-9606;
                                  COMPOSITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INS_HUMAN
P01308;
                                                                                                                                                                                                                                                                                                          DISULFID
                                                                                                                                                                                                                                                                          NON_CONS
                                                                                                                                                                                                                                                                                                DISULFID
                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INS_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                         qd
                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Caps
                                                                                                                                                                       AND
                                                                                                   WELEKAM W., Groneberg J., Leineweber M., Wengenmayer F., Winnacker B.-L.;

"The nucleotide sequence of cDNA coding for preproinsulin from the primate Macaca fascicularis.":

179-183 (1982).

1- FUNCTION: INSULIN DECREASE BLOOD GLUCOSE CONCENTRATION. IT INCREASES CELL PERMEABILITY TO MONOSACCHARIDES. AMINO ACIDS AND FATTY ACIDS: IT ACCELERATES GLYCOLESIS, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.

1- SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
            Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Acomys cahirinus (Egyptian spiny mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 110;
                                                                                                                                                                                                                             -:- SUBGELLULAR LOCATION: Secreted.
-:- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 4.1. Pred. No. 4.1e-22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11991 MW; 83C6E33A80A420F9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Insulin family: Hormone; Glucose metabolism; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           46.5%; Score 273; DB 1; 60.2%; Pred. No. 4.1e-22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C PEPTIDE.
INSULIN A CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INSULIN B CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         54 PREVNQHLCGSHLVEALYLVCGERGFFYTPKT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 83 EGSLOKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----RGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                    PIR; JQ0178; JQ0178.
HSSP; P01308; IA10.
InterPro; IPR004825; Ins/IGF/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                          MEDLINE-83080474; PubMed-6184262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequ
01-NOV-1997 (Rel. 35, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                  Pfam: PF00049; Insulin; 1.
PRINTS: PR00277; INSULINB.
SMART; SM00078; ILGF; 1.
PROSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                       EMBL: J00336: AAA36849.1: -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                Cercopithecinae; Macaca.
NCBL_TaxID=9541;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87
110
96
109
                                                                                                                                                                                                                     DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
les 53; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      110 AA;
                                                                        [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INS_ACOCA
P01324;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DISULFID
DISULFID
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Insulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SS SE DA PACE
    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
```

```
Buenzii H.F., Humbel R.E.

*Isolation and partial structural analysis of insulin from mouse (Mus musculus) and partial structural analysis of insulin from mouse (Mus voluts) and spiny mouse (Acomys cabitinus).":

*Hoppe-Seyler's E. Physiol Clem. 353:444-450(1972).

*!- FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT INCREASES CELL PERMEBILITY TO MONOSACCHARIDES, AMINO ACTINS AND FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHUSPHUATE

**FATTY ACIDS. IT ACCELERATES IN LIVER.

*!- SUBJUNT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO DISGLETICE BONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Nucleotide sequence of a cDNA clone encoding human preproinsulin."; Nature 282:525-527(1979).
a; Sciurognathi; Muridae; Murinae; Acomys.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota: Metazoa: Chordata: Cramiata: Vertebrata; Euteleostomi:
Mammalia: Eutheria: Primates: Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bell G.I., Swain W.F., Pictet R.L., Cordell B., Goodman H.M.,
Rutter W.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1; Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bell G.I., Pictet R.L., Rutter W.J., Cordell B., Tischer E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          -1- SUBGELLULAR LOCATION "creted.
-1- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY
PIR: A01591; INMSSP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INTERCHAIN (BY SIMILARITY).
INTERCHAIN (BY SIMILARITY).
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-80236313: PubMed-6248962;
Ullifich A., Dull T.J., Gray A., Brosius J., Sures I.;
"Genetic variation in the human insulin gene.";
science 209:612-615(1980).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       92BD8B629047D3D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            core 268.5; DB 1;
ered. No. 5.5e-22;
3; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
15-SEP-2003 (Rel. 42, Last unnotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NSULIN B CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INSULIN A CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         metabolism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Goodman H.M.:
*Sequence of the human insulin gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Interpro, IPR004825; Ins/IGF/relax
SMART; SM00078; IlGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDLINE-80120725; PubMed-6243748;
                                                                                                                         MEDLINE-72189454; PubMed-5028210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE; PS00262; INSULIN; 1.
Insulin family; Hormone: C'rrse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINE-80054779; PubMed-503234;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45.78;
92.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5768 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 92.3'
Matches 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nature 284:26-32(1980)
```

÷

```
proinsulin
 A MEDLINE-22388257; PubMed-12477932;

A Klausher R.D., Collins F.S., Wagner L., Shemmen C.M., Schuler G.D.,
A Alausher R.D., Collins F.S., Wagner L., Shemmen C.M., Schuler G.D.,
A Altschul S.F., Zeeberg B., Butcow K.H., Schaefer C.F., Bhat N.K.,
A Altschul S.F., Zeeberg B., Butcow K.H., Schaefer C.F., Bhat N.K.,
A Altschul S.F., Jeeberg B., Butcow K.H., Schaefer C.F., Bhat N.K.,
A Altschul S.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
A Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hoop L.,
A Stableton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
A Brownstein M.J., Usdin T.B., Toshhyuki S., Carninci P., Prange C.,
A Brownstein M.J., McKernan K.J., Mallahy S.J.,
A Robard S.A., McEwan P.J., McKernan K.J., Malek J.A., Gubsz R.A.,
A Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
A Richards S., Worley K.C., Hale S., Garcia A.M., Gabs R.A.,
A Mhiting M., Madan A., Young A.C., Shevohenko Y., Bouffard G.G.,
A Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
A Schnerch A., Scheni J.E., Jones S.J.M., Marra M.A.,
Brand Mouse cDNA sequences.
                                                                                                             Lucassen A.M., Bell J.I., Julier C., Lathrop M.;
Susceptibility to insulin dependent diabetes mellitus maps to a 4.]
Kb segment of DNA spanning the insulin gene and associated VNTR.";
Nat. Genet. 4:305-310(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pajardy I.I., Weill J.J., Stuckens C.C., Danze P.M.P.; Description of a novel RFLP diallelic polymorphism (-127 Bsg1 C/G) within the 5' region of insulin gene... Submitted (JUL-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               j
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sieber P., Kamber B., Hartmann A., Joehl A., Riniker B., Rittel H. "Total synthesis of human insulin under directed formation of the disulfide bonds.";
                       MEDLINE-80147417; PubMed-6927840; Sures I., Goeddel D.V., Gray A., Ullrich A.; "Nucleotide sequence of human preproinsulin complementary DNA."; Science 208:57-59(1980).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-71257722; PubMed-5560404;
Ko A., Smyth D.G., Markussen J., Sundby F.;
"The amino acid sequence of the C-peptide of human proinsulin.";
Eur. J. Biochem. 20:190-199(1971).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-71116410; PubMed-5101771;
Oyer P.E., Cho S., Peterson J.D., Steiner D.F.;
"Studies on human proinsulin. Isolation and amino acid sequence
the human pancreatic C-peptide.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   human and mouse cDNA sequences.";
Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 75-54 AND 90-110.
MICCL D.S.A.H.W., SMITH L.F.;
"Amino-acid sequence of human insulin.";
Nature 187:483-485(1960).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Helv. Chim. Acta 57:2617-2621(1974)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e human pancreatic C-peptide.";
Biol. Chem. 246:1375-1386(1971).
                                                                                                        MEDLINE-93364428; PubMed-8358440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SYNTHESIS.
MEDLINE-75077277; PubMed-4443293;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-75040007; PubMed-4803504; Naithani V.K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 1-59 FROM N.A.
                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SYNTHESIS OF 57-87
                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 57-87.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SECUENCE OF 57-87.
                                                                                                                                                                                                  TISSUE-Pancreas;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IISSUE-Blood;
```

```
Sakura H., Iwamoto Y., Saka \kappa_{\rm c}, Y., Kuzuya T., Hirata H.; "Structurally abnormal insulu in a diabetic patient. Characterization of the mutant insulin A3 (Val-->Leu) isolated from the pancreas.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-73161261; PubMed-4698553; Gelger R., Jaeger G., Keonig W., Treuth G.; "Synthesis of peptides with the properties of human proinsulin C peptides (C peptide). I. Scheme for the synthesis and preparation of the sequence 28-31 of human proinsulin C peptide."; Chem. Ber. 106:188-192(1973).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chan S.J., Seino S., Gruppus. P.A., Schwartz R., Steiner D.F.;
"A mutation in the B chain ce, no region is associated with impaired profinsulin conversion in a far.ly with hyperproinsulinemia.";
Proc. Natl. Acad. Sci. 0.S.A 4:2194-2197(1987).
                                                                                                                                                                                                                                            Geiger R., Volk A.;
"Synthesis of peptides with T. properties of human proinsulin C
peptides (Mc peptide). 3. Synthesis of the sequences 14-17 and 9-13
of human proinsulin C peptides.";
Chem. Ber. 106:199-205(1973).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VARIANT LOS ANGELES SER-48.
MEDLINE-84016053: PubMed-6312455;
Haneda M., Chan S.J., Kwok S.C.M., Rubenstein A.H., Steiner D.F.;
"Studies on mutant human insulin genes: identification and sequence analysis of a gene encoding [SerB44]insulin.";
Proc. Natl. Acad. Sci. U.S.A. 80:6366-6370(1983).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Shoelson S., Fickova M., Haneda M., Nahum A., Musso G., Kaiser E.T. Rubenstein A.H., Tager H.; "Identification of a mutant human insulin predicted to contain a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-99317021; PubMcd-2:96279;
Barbetti F., Raben N., Ka Jaki T., Cama A., Accili D., Gabbay K.H.
Merenich J.A., Taylor S.I., Roth J.,
"Two unrelated patients with familial hyperproinsulinemia due to a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequencing of genomic deoxyribonucleic acid amplified by polymerase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             in the
Studies on polypeptides, IV. The synthesis of C-peptide of human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-92291307; PubMed-1601997;
Yano H., Kitano N., Morimoto M., Polonsky K.S., Imura H., Seino Y
"A novel point mutation in the human insulin gene giving rise to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Shibasaki Y., Kawakami T., Kanazawa Y., Akanuma Y., Takaku F.; "Fosttranstational cleavage of proinsulin is blocked by a point mutation in familial hyperproinsulinemia."; J. Clin. Invest. 76:378-38*(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mutation substituting histidine for arginine at position 65 in
proinsulin molecule: identification of the mutation by direct
                                                                              doppe-Seyler's 2. Physiol. Chem. 354:659-672(1973)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         serine-for-phenylalanine substitution.";
Proc. Natl. Acad. Sci. U.S.A. 80:7390-7394(1983)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARIANTS LOS ANGELES SER-48 AND CHICAGO LEU-49
MEDLINE-84170233: Pubmed-6424111;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Clin. Endocrinol. Metab. 71:164-169(1990)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  hyperproinsulinemia (proinsulin Kyoto).";
J. Clin. Invest. 89:1902-1907(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Clin. Invest. 78:1666-1672(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VARIANI PROVIDENCE ASP-34
MEDILINE-87175640; Pubmed-3470344;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARÍANT HIS-89.
MEDLINE-85261996; Pubmed-4019786;
                                                                                                                                                                                                     MEDLINE-73161263; PubMed-4698555;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARIANT WAKAYAMA LEU-92.
MEDLINE=87058122; PubMed=35·
                                                                                                                                                                  SYNTHESIS OF 65-69 AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANT KYOTO LEU-89.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SYNTHESIS OF 84-87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chain reaction.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VARIANT HIS-89.
```

```
INS_SPETR
091XI3;
                                                                                                                                                                     DISULFID
DISULFID
SEQUENCE
                                                                                                                                                              DISULFID
                                                                                                                              CHAIN
PROPEP
                                                                                                                    SIGNAL
                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                                       INS_SPETR
                                                                                                                                                                                                                                                                                                                                                            RESULT 8
 ŝ
                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                        ô
                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation for European Bioinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                        84
                                                                                                                  "Comparative 2D NMR studies of human insulin and des-pentapeptide "Comparative 2D NMR studies of human insulin and des-pentapeptide Insulin: sequential resonance assignment and implications for protein Blochemistry 30:5505-5515(1991).
                                                                                                                                                                                                                                                                                                                   25 FVNOHLCGSHLVEALYLVCGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSIQPLALES
                                               assignment of a des-pentapeptide analogue and comparison with crystal structure.";
                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                        Hua O.-X., Weiss M.A.;
"Two-dimensional NMR studies of Des-(B26-B30)-insulin: sequence-specific resonance assignments and effects of solvent composition."; Blochim. Biophys. Acta 1078:101-110(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Toward the solution structure of human insulin: sequential 2D 1H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pan troglodytes (Chimpanzee).
Eukaryota; Metazoa: Chordata: Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan,
                                                                                                                                                                                                                                                                                  34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-92219953; PubMed-1560757;
Seino S., Bell G.I., Li W.;
Sequences of primate in Selection in humans and apes than in
slower rate of molecular evolution in humans and apes than in
                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 60.5%; Pred. No. 1.8e-21;
Matches 52; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -1- SUBCELLULAR LOCATION: Secreted.
-1- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                              01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                          110 AA
                                                                                                                                                                                                                                                                                                                                              SLOKRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
[22]
STRUCTURE BY NMR.
MEDLINE-91104966; PubMed-2271664;
                                                                          Biochemistry 29:10545-10555(1990)
                                                                                                                                                                                   STRUCTURE BY NMR.
MEDLINE-91265527; PubMed-1646635;
                                                                                                          MEDLINE-91242467; PubMed-2036420;
                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                 STRUCTURE BY NMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=9598;
                                                                                                                                                                                                                                                                                                                                                                                                                         INS_PANTR
P30410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            monkeys.
                                                                                                                                                                                                                                                                                                                                                                                                               INS_PANTR
                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                          a
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25 FVNQHLCGSHLVEALY! GGERGFFYTPKTRREAEDLQVGQVELGGGPGAGSLQPLALEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE: PS00262; INSULIN;
Insulin family: Hormone; Glatose metabolism; Signal: 30-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Spermophilus tridecemlineatus (Thirteen-lined ground squirrel).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Sciuridae; Sciurinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -1- SUBCELLULAR LOCATION: Secreted.
-1- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                             12025 MW; 41EB8DF79837CEF5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 267; DB 1; Lu
Pred. No. 1.8e-21;
J; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IS-SEP-2003 (Rel. 42, Created)
1S-SEP-2003 (Rel. 42, Last sequence update)
1S-SEP-2003 (Rel. 42, Last annotation update)
                                                                                                                                                                                                                                                                        INSULIN B CHAIN.
                                                                                                                                                                                                                                                                                            C PEPTIDE.
INSULIN A CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    110 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J; Mismatches
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                            INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                               INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95 SLOKRGIVEQCCTSICS::Y- LENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86 ----RGIVEQCCTSICSUN ENYON 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR004825; Ins/IGF/relax.
                                                                                    PDB; IEFE; 29-WAR-00.
InterPro: IPR004825; Ins/IGF/relax.
Infam; PF00049; Insulin: 1.
PRINTS; PR00277: INSULINB.
SWART; SM00078; IIGF; I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AY038604; AAK72558.1; -. HSSP; P01308; 1LNP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           45.58;
                                           EMBL; X61089; CAA43403.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 60.5 Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                      25
57
90 1
31
43 1
95 1
                                                                     A42179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID-43179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE-Pancreas:
```

```
1: Mismatches
                                                                                                                            51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR004825; Ins/IGF/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-66160119; PubMed-5949593; Smith L.F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SMART; SM00078; 11GF; 1.
PROSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       44.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5693 MM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 90.4
Matches 47: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISULFIDE BONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2INS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19
36
51 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID-9925;
                                                                                                                                                                                                                                                                                                      NCBI_TaxID=9838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P01317;
                                                                                                                                                                                                                                                                                                                                                           Danho W.O.;
                                                                                                                            INS_CAMDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INS_CAPHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_CONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE.
                                                                                                                                                                                                                                                                                                                                          SECUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISULFID
                                                                                                                                                                                                                   nsulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Insulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                        RESULT 10
INS_CAMDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INS_CAPHI
                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                   7
                                                                                                                                                                                                                                                                                                                       ------ 85
                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -1- FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACIDS ANY FATTY ACTOS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.

-1- SUBONIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO DISULFIDE BONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ishihara Y., Saito T., Ito Y., Fujino M.;
"Structure of sperm- and sei-whale insulins and their breakdown by whale pepsin.".
Nature 181:1468-1469(1958).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Balaenoptera borealis (Sei whale).
Bukaryota; Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Cetacea: Mysticeti;
Balaenopteridae; Balaenoptera.
                                                                                                                                                                                                                                                                                     36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 51;
                                                                                                                                                                                                                                                   Length 110;
                                                                                                                                                                                                                                                                                                                       50 LGTGP--RFVNQHLCGSHLVEALYLVCGERGFFYTPKT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SUBCELLULAR LOCATION: Secreted.
-!- SUBLIARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
PIR; A01582; INWHIS.
HSSP; P01317: 1APH.
                                                                                                                                                                                                                                                45.3%; Score 266; DB 1; Length 11 llarity 57.4%; Pred. No. 2.2e-21; Conservative 1; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                         INSULIN A CHAIN.
INTERCHAIN (BY SIMILARITY).
INTERCHAIN (BY SIMILARITY).
                                                                                                                                                                                              BY SIMILARITY.
4511768D6+22BEE5 CRC64;
Pfam; PF00049; Insulin; 1.
PRINTS; PR00277: INSULINB.
BMRT; SM00021: ILGF: 1.
PROSITE: PS00262; INSULIN; 1.
Insulin family: Hormone; Glucose metabolism; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9007B50E400A7DDD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                           77 PQPLALEMALQKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 263.5; DB 1
Pred. No. 1.9e-21;
3; Mismatches 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P01314;
21-JUL-1986 (Rel. 01, Created)
1-JUL-1986 (Rel. 01, Last sequence update)
01-OCT-1996 (Rel. 34, Last annotation update)
                                                                                                       INSULIN B CHAIN. C PEPTIDE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INSULIN A CHAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Insulin family; Hormone; Glucose metabolism.
CHAIN 1 30 INSULIN B CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51 AA
                                                                                        BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR004825; Ins/IGF/relax.
SMART; SM00078; ILGF; 1.
PROSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .
0
                                                                                                                                                                                              100 E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41
5723 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44.9%;
llarity 92.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                          24
54
87
110
96
                                                                                                                                                                                                               110 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
les 48; Conserv
                                                                                                                                                                                                                                                                    Local Similarity
es 54; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                51 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID-9768;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INS_BALBO
                                                                                                                                                                                              DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DISULFID
DISULFID
SEQUENCE
                                                                                                                                                            DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON_CONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DISULFID
                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Insulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                           CHAIN
PROPEP
                                                                                          SIGNAL
                                                                                                                                           CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loc
Matches
                                                                                                                                                                                                                                                                      Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 9
INS_BALBO
   SOUR PRESENTATION OF STREET AND PROPERTY AND
                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             dromedarius).";
J. Fac. Med. Baghdad 14:16-28(1972).
J. Fac. Med. Baghdad 17:17 Monosaccharides, amino Acids And Farty Acids. IT Accelerates Glycolysis, THE Pentose Phusphate CYCLE, And Glycogen Synthesis in Liver.
J. Subunit: Heferddimer of A B Chain And An A Chain Linked By Two
                                                                                                                                                                                                                                                                                                                                                                                                                                              Camelus dromedarius (Dromedary) (Arabian camel).
Eukaryota: Metazoa; Chordata; Craniata: Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Tylopoda; Camelus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Capra hircus (Goat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoldea;
Bovidae; Caprinae; Capria.
56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYOLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "The isolation and characterization of insulin of camel (Camelus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              UB 1; Length 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -:- SUBGELLULAR LOCATION: Secreted.
-:- SIMILARITY: BELONGS TO THE INSULIN/IGE/RELAXIN FAMILY
PIR: A92782; INCMA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             901E88BA085A7DDD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 263.5; DB 1;
Pred. No. 1.96:21;
Tratches 3;
                                                                                                                                                                                                                                                                                      21-JUL-1986 (Rel. 01, Createu)
21-JUL-1986 (Rel. 01, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
01-FEB-1996 (Rel. 33, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INSULIN A CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INSULIN B CHAIN
                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Insulin family; Hormone; Glucose metabolism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 51 AA
```

;

```
PDB;
PDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PDB;
PDB;
PDB;
PDB;
PDB;
PDB;
PDB;
PDB;
                                                                                                                                                                                                                                                                                                                                                                                                        1 1 1
   1; Gaps
*Species variation in the amino acid sequence of insulin.":

**. J. Med. 40:66(1966).

-!- FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. 11

INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACIDS AND
FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTUSE PHOSPHATE
CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.

-!- SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY IWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Comparative sequence analysis of the INS-IGF2-H19 gene cluster in
                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metázoa; Chordata; Craniata; Vertebra a; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
NCBL_TaxID-9823;
                                                                                                                                                                                                                                                                56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCISICSLYQLENYCN 107
                                                                                                                                                                                                                                                                         1 FVNQHLGGSHLVEALYLVGGERGFFYTPKA-GIVEQCCAGVCSLYQLENYCN 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 25-108.
MEDLINE-68286485; PubMed-5657063;
Chance R.E., Ellis R.M., Bromer W.M.;
Porcine proinsulin: characterization and amino acid sequence.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ., Nguyen M., Laere A.S., Braunschweig M., Nezer C., ., Andersson L.,
                                                                                                                                                                                                                           DB 1; Length 51;
                                                                        -1- SUBCELLULĀR LOCATION: Secreted.
-1- SUBLIARITY: BELONGS TO THE INSULIN/:GF/RELAXIN FAMILY.
PIR; AMD1586; INGT.
HSSP: P01317: 1APH.
HSSP: P01317: 1APH.
Interpro: IPROST06 4825; Ins/IGF/relax.
SNART: SNOON76 11GF; 1.
PROSITE; PSOO262; INSULIN: 1.
                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tuch B.E.;
porcine preproinsalin cDNA sequence.";
(MAY-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                         9007B50CDB4E7DDD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS).
Blundell T.L., Dodson G.G., Hodgkin D., Mercola D.;
                                                                                                                                                                                                                          Score 263.5; DB 1;
Pred. No. 1.9e-21;
1; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                21-JUL-1986 (Rel. 01, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
                                                                                                                                                   INSULIN B CHAIN.
                                                                                                                                                                     INSULIN A CHAIN.
                                                                                                                                                                                                                                                                                                                               108 AA.
                                                                                                                                          Insulin family; Hormone; Glucose metabolism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (JUL-1970) to the PIR data bank
                                                                                                                                                                             INTERCHAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-Large white;
MEDLINE-22135958; PubMed-12140686;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mamm. Genome 13:388-398(2002).
                                                                                                                                                                                                                          44.98;
                                                                                                                                                                                                         5692 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Science 161:165-167(1968).
                                                                                                                                                                                                                       Ouery Match
Best Local Similarity 90.41
Matches 47; Conservative
                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                    30
31
37
50
                                                                 DISULFIDE BONDS
                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
Han X.G., Tuch B.E
"Complete porcine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  [2]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                               Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                scrofa (Pig).
                                                                                                                                                            30
                                                                                                                                                                                                                                                                                                                               ins_PIG
P01315; Q9TSJ5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REVISION TO 59.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chance R.E
                                                                                                                                                                              DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Amarger V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Georges M
                                                                                                                                                            NON_CONS
                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                 DISULFID
                                                                                                                                                   CHAIN
                                                                                                                                                                      CHAIN
                                                                                                                                                                                                                                                                                                              RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                Sus
                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                 a
```

```
between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send
                                                                                                                                                                                                                                                                                                                                                                                                           Baker E.N., Blundell T.L., Cutfield J.F., Cutfield S.M., Dodson E.J., Dodson G.G., Crowtoot Hodykin D.M., Hubbard R.E., Isaacs N.W., Reynolds C.D., Sakabe K., Sakabe N., Vijayan N.M.; "The structure of 22n pid insulin crystals at 1.5-A resolution."; Philos, Trans. R. Soc. Lond., B, Biol. Sci. 119:369-456(1988).
                                                                                                                                                                                     *Experience with fast Fourier least squares in the refinement of the crystal structure of rhombohedral 2-zinc insulin at 1.5-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          insulin at 1.65-A resolution.:

Acta Crystallogr. D 53:507-512(1997).

-!- FUNT TION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT INC!: ASES CELL PERMEABILITY TO MONOSACHARIDES, AMINO ACTOS AN FATTY ACIUS. IT ACCELFRATES GLYCOLYSIS, THE PENTOSE PHUSPHATE CYCLE. AND GLYCOSEN SYNTHESIS IN LIVER.

-!- SUBDNIT: HETERODIMER OF 'B CHAIN AND AN A CHAIN LINKEU BY IWAD DISULFIDE BONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Diao J.-S., Wan Z.-L., Chang W.-R., Liang D.-C.;
"Structure of monomeric porcine DesBl-B2 despentapeptide (B26-B46)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WWW-"http://www.expasy.urg/spotlight/articles/sptlt009.html"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-91222450, PubMed-2025410:
Badger J., Harris M.R., Reynolds C.D., Evans A.C., Dodson E.J.,
Dodson G.G., North A.C.T.;
"Structure of the plg insulin dimer in the cubic crystal.";
Acta Crystallogr. B 47:127-136(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . .
"Insulin. The structure in the crystal and its reflection in chemistry and biology.": Adv. Protein Chem. 26:279\cdot402(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Balschmidt P., Hansen F.B., Dodson E., Dodson G., Korber F.
"Structure of porcine insulin cocrystallized with clupeine
Acta Crystallogt, 8 47:975-986(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUBCELLULAR LOCATION: Secreted.
SIMILARITY: BELONGS TO THE INSULIN/IGE/RELAXIN FAMILY.
DATABASE: NAME-Protein Spotlight:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X-RAY CRYSTALLOGRAPHY (1.65 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
MEDLINE-92126280; Pubmed~1772633;
                                                                                                                            X-RAY CRYSTALLOGRAPHY (1.5 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (1.5 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AF06455; AAC77920.1; ALT_INIT.
EMBL; AY044828; AAL69550.1; -.
                                                                                                                                                                                                                                                                                      Acta Crystallogr. A 34:782-791(1978).
                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-89099318; PubMed-2905485;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NOTE-Issue 9 of April 2001;
                                                                                                                                                             Isaacs N.W., Agarwal R.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X-RAY CRYSTALLOGRAPHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-APR-98.
28-FEB-97.
16-FEB-99.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      09-JAN-89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-JUL-94.
31-JAN-94.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-JAN-96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29-JAN-96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-JAN-96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-0CT-91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-0CT-91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-0CT-91
                                                                                                                                                                                                                                                           resolution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3INS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1IZB;
2TCI;
1MPJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 INS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GINS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7INS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SNI6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1DEI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3MTH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lizA;
```

8

```
PIR; A01588; INCT.
HSSP; P01317; 1APH
                                                                                                                                                                                                                                                                                                                                                              25
57
90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INS_FELCA
P06306;
                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                  DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      insalin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                             CHAIN
PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INS_FELCA
   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DDR REPARENTED DE PROPERTIES D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                  25 FVNQHI.CGSHLVEALYLVCCERGFFYTPKARREAENPQAGAVELGGGLGGLQALALEGPP 84
                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN-New Zealand white; IISSUE-Pancreas:
MEDLINE-94179230; PubMed-8132571;
Devaskar S.U., Giddings S.J., Rajakumar P.A., Carnaghi L.R.,
Menon R.K., Zahm D.S.;
*Insulin gene expression and insulin synthesis in mammalian neuronal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 56-110 FROM N.A.
Giddings S.J., Carnaghi L.R., Devaskar S.U.;
Submitted (APR-1991) to the EMBL/GenBank/DDBJ databases.
I- FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONFURTRATION. IT
INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACIDS AND
FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE
CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.
IL SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                        Glucose metabolism; Signal; 3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Oryctolagus cuniculus (Rabbit).
Ebkaryctos Metrazoa: Chordata; Craniata; Vertebrata; Euteleostomi;
Manmalla: Eutherla; Lagomorpha: Leporidae: Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 108;
                                                                                                                                                                                                                                                                                                                                                                                                                l; Indels
                                                                                                                                                                                                                                                                                                                                         11671 MW; CB4491B429858EBE CRC64;
                                                                                                                                                                                                                                                                                                                                                                          44.8%; Score 263; DB 1;
ilarity 60.7%; Pred. No. 4.6e-21;
Conservative 0; Mismatches 1;
                                                                                                                                                            C PEPTIDE.
INSULIN A CHAIN.
INTERCHAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21-JUL-1986 (Rel. 01, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
01-OCT-1996 (Rel. 34, Last annotation update)
                                                                                                                                             INSULIN B CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   110 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --RGIVEOCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          85 OKRGIVEQCCTSICSLYQLENYCN 108
PDB; 1ZNI; 28-JAN-98.

PDB; 1ZNJ; 28-JAN-98.

InterPro; 1PR004825; Ins/IGF/relax.

PERM; PF00049; Insulin; 1.

SMART; SM00078; IlOF; 1.

PROSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DISULFIDE BONDS.
-1- SUBCELLULAR LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Biol. Chem. 269:8445-8454(1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 25-54 AND 90-110.
MEDLINE-66160119; Pubmed-5949593;
                                                                                                          Insulin family; Hormone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                             24
54
94
108
107
107
46
46
46
46
46
106
                                                                                                                                                                                                                                                                                                                                           108 AA;
                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
es 51; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Insulin precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INS_RABIT
                                                                                                                                                            PROPEP
CHAIN
DISULFID
DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                     STRAND
HELIX
                                                                                                                             SIGNAL
                                                                                                                                                                                                                                                                                                                          STRAND
                                                                                                                                                                                                                                                      HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Loc
Matches
   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its way non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and tor commercial entities requires a license aprement (See http://www.isb-sib.ch/announce/or send an email to licensesisb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25 EVNOHICGSHLVEALYLVCGERGFFYTPKSRREVEELQVGDAELGGGPGAGGLQPSALEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34: Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hallden G., Gafvelin G., Mutt V., Joernvall H.;
"Characterization of cat insulin.";
Arch. Biochem. Biophys. 247:20-27(1986).
-!- FUNCTION: INSULIN DECREAS'S BLOOD GLUCOSE CONCENTRATION. IT
INCREASES CELL PERMEABILI Y TO MOMOSACCHARIDES, AMINO ACIDS AND
FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE
CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -! - SUBUNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Felis silvestris calus (Cat).
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Carnivora, Fissipedia, Felidae, Felis.
NCBI_TaxID=9685,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 263; DB 1; fengtu ... pred. No. 4 6e-21;
-! - SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -i- SUBCELLULAR LOCATION: Secreted.
-i- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -> Y (IN REF. 3).
8202975885077FA8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                     Insulin family, Hormone: Glucose metabolism: Signal. SIGNAL 1 \, - \, 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INSULIN B CHAIN.
C PEPTIDE.
INSULIN A CHAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel. 06, Last sequence update)
(Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INTERCHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JUENYCH 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----RGIVEQCCTSIC*** YQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rkT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPRO04825; Ins/IGF/relax.
PRINTS; PR00277; INSULINB.
                                                                                                                                                                                                                                                                                                                                               InterPro, IPR004825; Ins/IGF/relax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-86214076; PubMed-3518635;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-JAN-1988 (Rel. 06, Create:)
01-JAN-1988 (Rel. 06, Last Sequ
16-OCT-2001 (Rel. 40, Last unite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11838 MW;
                                                                                                                                                                                                                                            EMBL; U03610; AAA19033.1; -. EMBL; M61153; AAA17540.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                44.8%;
                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00049; Insulin; 1.
SMART; SM00078; IlGF; 1.
PROSITE; PS00262; INSULIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           111111111
85 ALDKRGIVEGCCTS1C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24
54
87
110
96
100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31
43
95
110 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DISULFIDE BONDS
                                                                                                                                                                                                                                                                                             PIR; A53438; INRB.
HSSP; P0~308; ITYM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 51; Conserv
```

```
ET ET ET SS
                                                                                                                                                                               δ
                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its way non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                             ;
                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Species variation in the amino acid sequence of insulin.";
Am. J. Med. 40:662-666(1966).
-!- FUNCTION: INSULIN DECREASES BLOOD GLUCOSE CONCENTRATION. IT
INCREASES CELL PERMEABILITY TO MONOSACCHARIDES, AMINO ACITS AND
FATTY ACIDS. IT ACCELERATES GLYCOLYSIS, THE PENTOSE PHOSPHATE
CYCLE, AND GLYCOGEN SYNTHESIS IN LIVER.
-!- SUBBNIT: HETERODIMER OF A B CHAIN AND AN A CHAIN LINKED BY TWO
DISULFIDE BONDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
MEDLINE—83109071; PubMed-6296142;
Kwok S.C.M., Chan S.J., Steiner D.F.;
Kwok S.C.M., Chan S.J., Steiner D.F.;
Cloning and nucleotide sequence analysis of the dog insulin gene.
Coded amino acid sequence of canine preproinsulin predicts an
additional C-peptide fragment...
J. Blol. Chem. 258:2357-2363(1983).
                                                                                                                                                                                                                        56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                  Canis familiaris (Dog).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria: Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                         1;
                                                                                                                                                             Score 262.5; DH 1; Length 51;
Pred. No. 2.4e-21;
2; Mismatches 2; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -1- SUBCELLULAR LOCATION: Secreted.
-1- SIMILARITY: BELONGS TO THE INSULIN/IGF/RELAXIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL: V00179; CAA23475.1; -.
PIR; A92413; IPDG.
HSSP: P01317; 1APH.
InterPro: IPR004825; Ins/IGF/relax.
Pram: PR00049; Insulin; 1.
SWART; SW00078; IIGF; 1.
PROSITE; PS00262; INSULIN; 1.
Insulin family; Hormone; Glucose metabolism; Signal.
SIGNAL
1 24
                                                                                                                                   9007B5096A0A7DDD CRC64;
                                                                                                                                                                                                                                                                                                                                                           21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
11-JUL-1986 (Rel. 33, Last annotation update)
Insulin precursor.
SMART: SM00078: ILGF: 1.
PROSITE: PS00262: INSULIN: 1.
Insulin family: Hormone: Glucose metabolism.
19 INSULIN B CHAIN.
                                                                          INSULIN A CHAIN
                                                                                                                                                                                                                                                                                                                               110 AA
                                                                                                                                                                                             2; Mismatches
                                                                                      INTERCHAIN.
INTERCHAIN.
                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 25-54 AND 90-110.
MEDLINE-66160119; PubMed-5949593;
                                                          31
51
37
50
41
5745 MW;
                                                                                                                                                               44.78:
                                                                                                                                                             Ouery Match
Best Local Similarity 90.4*
Matches 47; Conservative
                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                    51 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCB1_TaxID-9615;
                                                             30
31
7
19
36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Smith L.F.;
                                                                                                                                                                                                                                                                                                                               INS_CANFA
P01321;
                                                                                        DISULFID
DISULFID
DISULFID
                                                            NON_CONS
                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                               INS_CANFA
                                                                                                                                                                                                                                                                                                                                ò
```

```
85
                                                                                                                                                                                               25 FVNQHLCGSHLVEALYLVCGERGFFYTPKARREVEDLQVRDVELAGAFGEGGLQPLALEG 84
                                                                                                                    44.6%; Score 262; DB 1; Length 110; 59.3%; Pred. No. 5.9e-21;
                                                                                                                                                                                56 FVNQHLCGSHLVEALYLVCGERGFFYTPKT .............
54 INSULIN B CHAIN.
87 CEPTIDE.
110 CRSULIN A CHAIN.
96 INTERCHAIN.
109 INTERCHAIN.
100
1. 12190 M.. A574791864A4FB98 CRC64;
                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                           86 ---- RGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                        85 ALQKRGIVEQCCTSICSLYQLENYCN 110
                                                                                                                                                    Conservative
 25
57
90
31
43
95
110 AA:
                                                                                                                     Query Match
Best Local Similarity
Matches 51; Conserv
                                                            DISULFID
DISULFID
SEQUENCE
                               CHAIN
DISULFID
   CHAIN
```

Search completed: September 16, 2003, 12:38:51 Job time : 9.32685 secs

```
091XI3 PRELIMINARY; PRT; 091XI3; 01-DEC-2001 (TrEMBLrel. 19, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       091XI3
ID 09
AC 09
DT 01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08hxv2 pongo pygma 091xi3 spermophilu 091xi3 spermophilu 08mw6 fclis silve 08wme0 ateles geof 01464 homo saplen 001368 macaca mula 007368 macaca mula 008470 homo saplen 01407 homo saplen 090465 brachydanio 090zn4 catla catla 098m0 ateles geof 090zyl hiodon alos
                                                                 September 16, 2003, 12:34:00 ; Search time 25:8132 Seconds (Without alignments) 1669.670 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                      1 MFPIIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Description
                                                                                                                                                                                                                     830525
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                             830525 seqs, 258052604 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                             OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           014644
091807
007368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           007367
098TA8
007369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0902N4
098TB0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9DDE5
                                                                                                                                                                                                                                                                                                                                                                                                                                     sp_plant:*
sp_rodent:*
sp_virus:*
sp_vertebrate:*
sp_unclassified:*
sp_rvirus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OBWNW6
OBWNE0
                                                                                                                                                             BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q8HXV2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             014407
                                                                                                                                                                                                                                                                                                                                                        sp_fung1:*
sp_human:*
sp_invercebrate:*
sp_mammal:*
sp_mcman:*
sp_organele:*
sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sp_bacteriap:*
                                                                                                                                                                                                                                                                                                                      SPTREMBL_23:*
: sp_archea:*
: sp_bacteria:*
                                                                                                                                                                                                                                          Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13
6
6
6
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sp_archeap:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                113
13
13
                                                                                                            US-09-423-100-6
587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            33.8
33.3
33.2
33.2
                                                                                                                                                                                                                                                                                                                                                                                                                                        10:
11:
12:
13:
                                                                                                           fitte:
Ferfect score:
                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              267
256
251
249
228
213
213
213
201
197
197
195
195
195
193
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score
                                                                                                                                         Sequence:
                                                                                                                                                                                               Searched:
                                                                                                                                                                                                                                                                                                                    Database
                                                                    Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ç
Z
```

110 AA.

~

```
DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                              245 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38.8%; Score 228;
                 85 PLOKRGIVEQCCASVCSLYQLEHYCN 110
        ----RGIVEQCCTSICSLYQLENYCN 107
                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1-JAN-1998 (TrEMBLrel. 05, Created)
1-JAN-1998 (TrEMBLrel. 05, Last seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam: PF00103; hormone; 1.
PROSITE; PS00266; SOMATOTROPIN_1; 1.
                                                                                PHT;
                                                                                                                                                                                                                                                                                                                                                                                                                                              PKT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          interPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                             Ouery Match
Best Local Similarity 97.99
Matches 47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                PRELIMINARY;
                                                                                                  01-MAR-2002 (TrEMBLrel.
01-MAR-2002 (TrEMBLrel.
01-MAR-2003 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             245 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCB1_TaxID-9606;
                                                                                                                                                                                    NCBI_TaxID-9509;
                                                                                                                                  Growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
         86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                O8WNE0
                                                                                                                                                                                                                                                                                                                                                                                                                                              014644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HCH-V.
                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 5
014644
                            g
                                                                                                  ò
                                                                                                                                                                                                                                                                             ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      50 LGTGP--RFVNQHICGSHLVEALYLVCGERGFFYTPKT--------------
                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                          Spermophilus tridecemlineatus (Thirteen-1.ned ground squirrel).
Eukaryota: Metuzoa: Chordata: Craniata: Vertebrata: Euteleostomi;
Mammalia: Eutheria: Rodentia: Sciurognathi; Sciuridae: Sciurinae:
Spermophilus:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Felis silvestris catus (Cat.).
Eukaryota, Metazoa, Chordata: Craniata: Vertebrata; Eutoleostomi;
Mammalia, Eutheria, Carnivora; Fissipedta: Felidae; Felis.
                                                                                                                                                                                                                                                                             36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        34;
                                                                                                                                                                                                                                                        Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42.8%; Score 251; DB 6; Length 11
55.8%; Pred. No. 5.3e-22;
tive 2; Mismatches 2; Indels
                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                          Pfam: PF00049; Insulin; 1.
PRINTS; PR00277; INSULINB.
SMART; SM0(078: 11GF).
PROSITE; P: 10262; INSULINB.
SEQUENCE: 110 AA: 12004 MH; 4511768D6622BEE5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             110 AA; 12069 MW; 95FB6E170C7BECA4 CRC64;
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                 01-MAR-2002 (TrEMBLrel. 20, Created)
01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                       Score 266; DB 11;
Pred. No. 8.7e-24;
1; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                         110 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           56 FVNQHLCGSHLVEALYLVCGERGFFYTPKT---
                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                        45.3%; 57.4%;
                                                                                                                                                                                                                                                 Ouery Match
Best Local Similarity 57.4%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE-Pancreas;
Okamoto S., Morimatsu M.;
*cat insulin: ";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                          SEQUENCE FROM N.A.
                                                                     NCBI_TaxID-43179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID-9685;
                                                                                                      TISSUE-Pancreas;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Preproinsulin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                          OBWINE:
                                                                                                                                                                                                                                                                                                                                                                                                               OBWNW6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                           RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                      OBWNW6
                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                         ò
 ò
```

```
Gaps
                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleustom:;
Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Atelimae; Ateles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-Term placenta;
MEDLINE-9837373; PubMed-9709963;
Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,
Carlsson L.M.S., Carlsson B.;
"Cloning of two novel growth hormone transcripts expressed in human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (Human).
Eukaryota, Metazoa, Chordata, Cranidia, Veitebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                        Revol A., Esquivel D., Santiago D., Barrera-Saldana H.:
"Independent duplication of the growth hormone gene in three
Anthropoidean lineages."
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
BMBL. AFR74241, AAL7286.1:
InterPro. IPR001400: Somatoiropin.
Pram: PF00103: hormone: 1.
PROSITE, PS00266: SOMATOTROPIN. 1: 1.
PROSITE: PS00388: SOMATOTROPIN. 2: 1.
SEQUENCE 217 AA: 24894 MW. 425829F41EEAAE6 CRC64:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 FPTIPLSRLFDNAMLRABKLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26 POTENTIAL,
27101 MW: 14CC7F8CD75D91C8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-JAN-1998 (TrEMBLrel. 05, Last sequence update) 01-DEC-2001 (TrEMBLrel. 19, Last annotation update) Placental growth hormone isoform hGB V3 precursor.
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   42,4%; Score 249; DH 6; 97,9%; Pred; No. 2e-21; tive 0; Mismatches 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              placent: ";
J. Clin. Endocrinol. Metab. 8::2878-2885(1998).
AF006061; AAB71829.1;
HSSP; P01241; 1A22.
                                                                                                                                   Ateles geoffroyi (Black-handed spider monkey).
```

Length 245;

0;

m

```
EMBL; L16553; AAA18840.1; -.
HSSP; P01241; 1AXI.
InterPro; IPR001400; Somatotropin.
                                                                                                               Best Local Similarity 78.74
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 78.79
Matches 37; Conservative
                                                                                                                                                                                                                                PRELIMINARY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID-8276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Preproinsulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                    Query Match
                                                                    NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       098TAB;
                                                                                                                                                                                                                                          007367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             098TA8
                                                                                                                                                                                                                             007367
                                                                                                                                                                                                         œ
             a
                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ..
                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98 ----- 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24 FDNOYLCGSHLVEALYMVCGDRGFFYSPRSRRDLEQPLVNGLQGSELDEMQVQSQAFOKR 83
                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
"Cloning of four growth hormone/chorionic somatchmanmotropin-related complementary decayribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.";
Endocrinology 133:1744-1752(1993).
                                                                                                                                                                                                                                                         01-0CT-2000 (TrEMBLrel. 15, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Preproinsulin.
mana pipiens (Northern leopard frog).
Eukaryota: Metazoa: Chordata; Craniata: Vertebrata; Euteleostomi;
Amphibla: Batrachia; Anura; Neobatrachia; Ranoidea; Rana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Somatotropin 2 precureor (Growth hormone 2) (Fragment).
Macaca mulatta (Rhesus macaque).
Macaca mulatta (Rhesus macaque).
Marmania: Butheria: Primates: Craniata: Vertebrata: Euteleostomi:
Marmania: Butheria: Primates: Catarrhini; Cercopithecinae; Macaca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31;
                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 13; Length 106;
                                             49
                                                        27 FPTIPLSRLFDNAMLRARRLYQLAYDTYQEFEEAYILKEQKYSFLQNP 74
                                             2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQFYSFLQNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56 FVNQHLCGSHLVEALYLVCGERGFFYTPKTR--------
                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS00262; INSULIN; 1.
SEQUENCE 106 AA: 12183 MM; 3A870EEC70217F92 CRC64;
7.2e-19;
2;
                                                                                                                                                                                                                                                                                                                                                                                                                                           37.4%; Score 219.5; DB 13;
49.4%; Pred. No. 2.8e-18;
tive 7; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   212 AA
                                                                                                                           106 AA
           Pred. No. 7.26
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     87 -- GIVEQCCTSICSLYQLENYCN 107
                                                                                                                          PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR004825; Ins/IGF/relax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-94008724; PubMed-8404617;
                                                                                                                                                                                                                                                                                                                                                                         Pfam: PF00049; Insulin; 1.
PRINTS; PR00277; INSULINB.
SMART; SM00078; IIGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match 37.4
Best Local Similarity 49.4
Matches 41; Conservative
                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY:
                                                                                                                           PRELIMINARY;
              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID-9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-Placenta;
                                                                                                                                                                                                                             NCBI_TaxID-8404;
             Best Local
Matches 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 7
                                                                                                     RESULT 6
                                                                                                                            ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
```

```
;;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IISSUE-Midpregnancy placenta:
MEDLINE-94008724; PubMed-9404617;
Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
"Cloning of four growth hormone/chorionic somatcommunotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus m key placenta.";
Endocrinology 133:1744-17 [1993],
Endocrinology 133:1744-17 [1993],
HSSP; P01241; 1AXI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
Cercopithecinae; Macaca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii; Teleostel; Osteoglossomorpha;
Osteoglossiformes; Pantodontidae; Pantodon.
                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  :
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3 PTIPLSRLFONAMIRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 217;
                                                                                                                                                                                                                                                                                                                          23 PSVPLSRLFDHAMIQAHRIHQLAFDTYQEFEEAYIPKEKKHSLMENP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                      3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-21203577; PubMed-11306171;
Al-Mahrouki A.A., Irwin D.M., Graham L.C., Touson J.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRINTS: PR00836; SOMATOTROPIN.
PROSITE; PS00338; SOMATOTROPIN_2; 1.
SEQUENCE 217 AA; 24942 MW: FF5AA8915131F2BC CRC64;
                                                                                                  SEQUENCE 212 AA; 24525 MW; 27BC91106256E6F5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NAR-2003 (TrEMBLrel. 23, Last annotation update)
Chorionic somatcomamnotropin.1
Macaca mulatta (Rhesus macaque).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, L st sequence update)
01-MAR-2003 (TrEMBLrel. 23, L st annotation update)
                                                                                                                                                         36.3%; Score 213; DB 6; 78.7%; Pred. No. 3.7e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36,3%; Score 213; DB 6; 78,7%; Pred; No. 3.8e-17; Live 9: Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              217 AA
                                                                                                                                                                                                                        9; Mismatches
Pfam; PF00103; hormone; 1.
PROSITE; PS00338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pantodon buchholtzi (Butterflyfish)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PKT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR001400; Somatotropin.
Pfam; PF00103; hormone: 1.
```

```
33.6%
Query Match
Best Local Similarity 80.0%
Matches 36; Conservative
                                                                                                                      Genomics 4:479-497(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY:
              Homo sapiens (Human).
                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Insulin precursor
                                                                                                                                                                                                                         TISSUE-Placenta;
                                          NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                     HSSP; P01241;
                                                                                                                                                                                                                                   Strausberg R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09DDE5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9DDE5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09DDE5
    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ó
                                                                                                                                                                         . . . . . . 85
                                                                                                                                                                                   014407.
01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Chorionic somatomammotropin CS-2 (Chorionic somatomammotropin hormone
                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-Midpregnancy placenta;
MEDLINE-94008724: PubMed-8404667;
Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
"Cloning of four growth hormone/chorionic somatcomanmotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.";
Endocrinology 13:1744-1752(1993).
                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                         007369;
001-NOV-1996 (TEMBLrel. 01, Created)
01-NOV-1996 (TEMBLrel. 01, Last sequence update)
01-MAR-2003 (TEMBLrel. 23, Last annotation update)
01-MAR-2003 (TEMBLrel. 23, Last annotation update)
Chorionic somatomammotropin 3.
Macaca mulatta (Rhesus acquee).
Eukaryota; Metazoa; Chordata (Craniata: Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                     35;
                                                                                                                                34.3%; Score 201.5; DB 13; Length 110; 43.5%; Pred. No. 4e-16;
3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLONP 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28 PSVPLSRLFDNIMMQAHRLHQLAFDTYQEFEKTYIPKEKKHSLMGNP 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34.2%; Score 201; DB 6; Length 217; 74.5%; Pred. No. 1e-15; ive 8; Mismatches 4; Indels
                                                                                                                                                                        58 NQHLCGSHLVEALYLVCGERGFFYTPKT---------
                                                                                                                                                    5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FIEB6AFDBBA1B185 CRC64;
                                                                                                                                                                                                                                                                                  217 A.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            217 AA
                                                                                                                                                     8; Mismatches
                                                                                                                                                                                                                          86 --- RGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR001400: Somatotropin.
Pfam: PF00103; hormone: 1.
PR051TE; PS00266; SOMATOTROPIN_1; 1.
SEQUENCE 217 AA; 24874 MM; FIEB6A
                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                           Best Local Similarity 43.59
Matches 37, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    35; Conservative
                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                       Cercopithecinae; Macaca.
NCBI_TaxID=9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSSP; P01241; 1AXI
                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local
                                                                                                                                                                                                                                                                                   907369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            014407
                                                                                                                                                                                                                                                                RESULT 10
Q07369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 11
Q14407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ô
                                                                                                                                                                                                                                                                                            ò
```

```
.;
0
                                                                                                                                                   MEDLINE-89307277; PubMed-2744760;
Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
Seeburg P.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Brachydanio rerio (Zebrafish) (Danio rerio).
Eukaryota: Metazoa: Chordata; Craniata: Vertebrata; Euteleostomi:
Actinopterygii: Neopterygii: Teleostel: Ostariophysi; Cyprinilormes:
Cyprinidae: Danio.
NCBI_TaxID=7955:
                                                                                                                                                                                                                                                "The human growth hormone locus: nucleotide sequence, biology, and evolution.";
                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-91102558; PubMed-1 .158; Vnencak-Jones C.L., Phillips J.A. 111.; Het spots for growth hormone gene deletions in homologous regions outside of Alu repeats. Science 250:1745-1748(1990).
Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi;
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-99425190; PubMed-10495291;
Argenton F., Zecchin E., Bortolussi M.;
"Early appearance of pancreatic hormone-expressing cells in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEETYIPKDQKYSFLHD 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -i - SUBCELLULAR LOCATION: SECRETED (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQN 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE-Placenta;
Strausberg R.:
Submitted (Jul.2002) to the 1M i./GenBank/DDBJ databases.
EMBL: J03071; AAA52553.1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Strausberg R.;
Submitted (JAN-2002) to the EM-L/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PRO0836; SOMATOTROPIN
PROSITE; PSO0236; SOMATOTROPIN_1: 1.
PROSITE; PSO0336; SOMATOTROPIN_2: 1.
SEQUENCE: 217 AA: 24994 MW; 39FAACUDB6B2E951 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAR-2001 (TIEMBLrel. 16, Created)
01-MAR-2001 (TIEMBLrel. 16, Last sequence update)
01-MAR-2003 (TIEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         33.6%; Score 197; DB 4;
80.0%; Pred. No. 3e-15;
tive 5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P.K.T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR001400; Somatotropin.
Pfam; PF00103; hormone; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; BC022044; AAH22044 1;
EMBL; BC035965; AAH35965.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   zebrafish embryo.";
Mech. Dev. 87:217-221(1999).
```

S

Signal.

DR DR DR DR KW LT FT FT SO

```
26 NQHLCGSHLVEALYLVCGERGFFYNPKMDKRDAEPLLGFLSPKSGLENEVDEYPFKDQAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Atèles geoffroyi (Black-hand-d spider monkey).
Eukaryota: Metazoa: Chordata: Craniata; Vertebrata: Futeleostomi;
Mammalia; Eutheria; Primates; Platyrrhini; Cetidae: Atelinae; Atèles.
                        01-JUN-2001 (TrEMHLrel, 17, rated)
01-JUN-2001 (TrEMHLrel, 17, rt sequence update)
01-JUN-2003 (TrEMHLrel, 17, rt sequence update)
01-MAR-2003 (TrEMHLrel, 23, rt annotation update)
Preproinsulin (Fragment)
Preproinsulin (Fragment)
Printala chitala (clown knifetish)
Eukaryotas Metazoa; Chordadas Claniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii, Fribostel; Osteoglossomorpha;
Osteoglossiformos; Notopteridae; Chitala.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Revol A., Esquivel D., Santiago D., Barrera-Saldana H.
Revol A., Esquivel D., Santiago D., Barrera-Saldana H.
"Independent duplication of the growth hormone gene in three
Anthropoidean lineages.";
L Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
E EMBL, AF742353, AAL72287.1;
R InterPro; IPR001400; Somatotropin.
R PRIMT; PR00103; hormone: 1.
R PRIMT; PR00103; SOMATOTROPIN.]: 1.
R PROSITE; PS00266; SOMATOTROPIN.]: 1.
R PROSITE; PS00304; SOMATOTROPIN.]: 0.
SEQUENCE 217 AA: 25293 WW; 741745A1B75C053E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 33.2%; Score 195; DB 13; Length, 111; 44.2%; Pred. No. 2.4e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
                                                                                                                                                                                                                                                                                                                                                                                         MEDINE-212057; pubmed-1.30-171;
A Al-Mahrouki A.A., Irwin D.M., Gaham L.C., Youson J.H.:
A Molecular cloning of preprintation consequence of preprintations of the consequence of the co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H(2001).
TED (BY SIMILARITY).
:NSULIN/IGF/RELAXIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 33.2%; core 195; DB 6; Length 21 Best Local Similarity 77.1%; red. No. 5.2e-15; Matches 37; Conservative 5; Mismatches 6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER 111 111
SEQUENCE 111 AA: 12483 MW; 247CA4431376329F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     est sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86 VKMKRGIVEOCCHRPCNIFIXONQYCN 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   85 --- TRGIVEQCCISICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     eated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAR-2002 (TrEMBLrel. 20, 01-MAR-2002 (TrEMBLrel. 20, 01-CCT-2002 (TrEMBLrel. 22, Growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 44.29
Matches 88; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                  NCBI_TaxID-112163;
                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID-9509;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QBWND9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6GNM80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C8WND9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 59 QHLCGSHLVEALYLVCGERGFFYTPK-----T-T-T-T-T-T-T-T-T-T-T-T-T-T-R5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    59 QHLCGSHLVEALYLVCGERGFFYTPK------T 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A Badtachaya S., Roy S.S., Dasgupta S., Ravikumar L., Mukherjee M.,
A Bandyopadhyaya I., Wakabayasi K.;
Bandyopadhyaya I., Wakabayasi K.;
I. A new cell secreting insulin. I.
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
I. SUBCELLULAR LOCATION: SECRETED (BY SIMILARIIY).
I. SUBCELLULAR ARXISS8.I.
REMBL; ARXI3021: AAXISS8.I.
R HSSP; P01308: ILNP.
R RSPP: P01308: ILNP.
R FORDER: PRO0277: INSULINE.
R PRINTS; PRO0277: INSULINE.
R SHART; SMO0078: IISSIIN: I.
PRINTS; PRO0278: INSULINE.
R SHART; SMO0778: INSULINE.
R ROSITE: PS000262: INSULINE: I.
PROSITE: PS000262: INSULINE: I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 33; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              33; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Catla catla (catla).
Eukaryota: Metazoa: Chordata: Craniata: Vertebrata: Euteleostomi:
Actinopterygii: Neopterygii: Teleostei: Ostariophysi: Cypriniformes:
Cyprinidae: Catla.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            33.3%; Score 195.5; DB 13; Length 108;
45.1%; Pred. No. 2e-15;
tive 5; Mismatches 7; Indels 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        33.3%; Score 195.5; DB 13; Length 108;
45.1%; Pred. No. 2e-15;
Live 5; Mismatches 7; Indels 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7: Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7; Indels
                                                                                                                                                                                                                                                                                              POTENTIAL.
INSULIN B CHAIN.
INSULIN A CHAIN.
3195289E72AD6D25 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     111 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86 RGIVEQCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86 RGIVEOCCTSICSLYQLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                          InterPro; IPR004825; Ins/IGF/relax.
Pfam; PF00049; Insulin; 1.
PRNTS; PR00277; INSULINB.
SMART; SMO07078; IlGF; 1.
PROSITE: PS00262; INSULIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT:
                                                                                                                                                                                                                                                                                                  SIĞNAL 1 23 PK
CHAIN 24 53 II
CHAIN 86 108 II
SEQUENCE 108 AA; 11904 MW;
EMBL; AJ237750; CAC20109.1; -. HSSP; P01308; 1LPH, ZFIN; ZDB-GENE-980526-110; ins
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 45.18
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0uery Match
Best Local Similarity 45.19
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Preproinsulin.
```

RESULT 13 Q902N4

ò

16;

ö

Gaps

ô

098TB0

RESULT 14 0987B0 ID 09

ô

27 FPRIPLSRLFGDAMLRAHOLHQVAFDTYQELEENCIPKKGKYFFLRNP 74

Search completed: September 16, 2003, 12:40:00 Job time : $27.8132\ secs$

```
September 16, 2003, 12:31:20 ; Search time 44.358 Seconds (without alignments) 536.746 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A_Geneseq_19Jun03:*

| SIDSI/gcgdata/geneseqp-embl/AA1980_DAT:*
| SIDSI/gcgdata/geneseqp-embl/AA1981_DAT:*
| SIDSI/gcgdata/geneseqp-embl/AA1991_DAT:*
| SIDSI/gcgdata/geneseqp-embl/AA1991_DAT:*
| SIDSI/gcgdata/geneseqp-embl/AA1991_DAT:*
| SIDSI/gcgdata/geneseqp-embl/AA1991_DAT:*
| SIDSI/gcgdata/geneseqp-embl/AA1991_DAT:*
| SIDSI/gcgdata/geneseqp-embl/AA1991_DAT:*
| SIDSI/gcgdata/geneseqy-geneseqp-embl/AA1991_DAT:*
| S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MFPTIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1107863
GenCore version f 1.6
Copyright (c) 1993 - 2003 (umpugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1107863 seqs, 158726573 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                   OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-423-100-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database
                                                                                                                                                                                                                                                                                               Run on:
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Description	Chimeric protein,	hGH-mini-proinsuli	Human growth hormo	Human anti-angloge	Human growth hormo	Human growth hormo	Human anti-angloge	Human growth hormo	Human nerve growth
SUMMARIES		4	10	AAY42861	AAY42860	AAY42856	AAW92265	ABG94861	AAP90129	AAW92264	AAP91041	AAP91299
				20	20	20	20	23	10	50	10	10
		Query	Length	150	107	92	134	191	192	192	140	261
	ø	Query	Match	100.0	69.7	59.0	59.0	59.0	58.5	58.5	58.3	58.3
		,	score	197	555.5	470	470	470	466	466	465	465
		Result	9	-	7	3	4	S	9	7	80	σ

New chimeric proteins containing human growth hormone fragment, used

WPI; 1999-610839/52.

Gan Z;

AXXXXXXXX

(TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.

262 12 AAR11740 310 11 AAK03255 191 23 ABG94862 191 23 ABG94867 191 23 ABG94977 144 11 AAK05313 191 23 ABG94976 202 AAC071033 191 23 ABG94976 191 22 AAC17485 191 22 AAC17486 191 22 AAC17486 191 22 AAC17486 191 23 ABG94914 191 23 ABG94916 191 23 ABG94916 191 23 ABG94916 191 23 ABG94916 191 23 ABG94920	growth protein protein growth growth nt. of B-growth	Human beta-nerve g Protein sequence o Natural human 22kD Human growth hormo Human growth hormo	Human growth hormo Human growth hormo Human growth hormo Human growth hormo Human growth hormo	Human growth hormo Human growth hormo Human growth hormo Human growth hormo Human growth hormo Human growth hormo Human growth hormo	growth growth growth growth growth growth growth growth
		4			
	2200020				1000000000
	58 88 88 88 88 88 88 88 88 88 88 88 88 8				
	.0000000	2222	4 4 4 4 4 4 4 6 1 1 6 1 6 1 6 1 6 1 6 1		
00000000000000000000000000000000000000	11 11 12 12 14 16 16	18 18 20 21 22	2 2 2 2 2 3 4 3 4 3 4 3 4 4 4 4 4 4 4 4	20 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 W W W & & & & & & & & & & & & & & & &

RESU	RESULT 1	
AAY4	AAY42861	
Ωį	AAY42861 stand	AAY42861 standard; protein; 150 AA.
×		
AC	AAY42861;	
×		
DI	19-JAN-2000 (first entry)	first entry)
XX	•	
DE	Chimeric protein, SEQ ID 7.	in, SEQ 10-7.
×		
3	Insulin; precu	Insulin; precursor; growth hormone; chaperone; intramolecular;
X	folding; confo	folding; conformation; chimeric protein; cleavable; recombinant:
3	production; yield.	eld.
×	•	
SO	Synthetic.	
SO	Homo sapiens.	
XX		
PN	W09950302-A1.	
×		
PD	07-0CT-1999.	
×		
PF	31-MAR-1998;	98WO-CN00052.
×		
PR	31-MAR-1998;	98WO-CN00052.
×		

ALIGNMENTS

us-09-423-100-7.rag

```
RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAY42856
 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3
                                                                                                  of the chimeric protein acts as an intramplecular chaperone [IMC] for the insulin precursor, enabling it to fold correctly. The cleavable peptide linker has a C-terminal Arq residue which enables the hGH portion of the chimeric protein to be removed after folding has taken place. Production of recombinant human insulin via an hGH-profusulin chimeric protein can provide human insulin with correctly linked cysteine bridges with fewer necessary procedural steps, and hence resulting in a higher yield of human insulin. The IMC sequences not only protect insulin sequences from intracellular degradation by a microorganism host, but also promote the folding of the fused insulin precursor, facilitate the solution proteins and decrease the intermolecular interactions among the fusion proteins of this allowing folding of the fusion proteins. The fused insulin precursor at commercially useful high concentrations. The procedural steps of cyanogen bromide cleavage, oxidative sulphitolysis and related purification steps can thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic absorbent
                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQIGTGPRFVNQHLCGSHLVEALY:UVCGER 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGSHLVEALYLVCGER 120
                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                               This sequence represents a chimeric protein, which contains an N-terminal fragment of human growth hormone (hoth) of the sequence given in AAY42855, a cleavable peptide linker (AAY42857), and a human insulin precursor comprising insulin A and B chains (AAY42859). The hGH portion
                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              conformation; chimeric protein; cleavable; recombinant;
                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Insulin; precursor; growth hormone; chaperone; intramolecular;
                                                                                                                                                                                                                                                                                                                                                                            DB 20; Length 150;
                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 797; DB 20; 100.0%; Pred. No. 1e-42; ... wismatches 0;
particularly for the production of human insulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 GFFYTPKTRGIVEOCCTSICSLYQLENYCN 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GFFYTPKTRGIVEQCCTSICSLYQLENYCN 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LID.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hGH-mini-proinsulin chimeric protein.
                         Claim 14; Page 30-31; 46pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAY42860 standard; protein: 107 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98WO-CN00052.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98WO-CN00052.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19-JAN-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             folding; conformat
production; yield.
                                                                                                                                                                                                                                                                                                                                                  150 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W09950302-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-0CT-1999
                                                                                                                                                                                                                                                                                                                                                                                                      150;
                                                                                                                                                                                                                                                                                                                                                    Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAY42860;
                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gan 2;
                                                                                                                                                                                                                                                                                                                                                                                          Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAY42860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
```

```
This sequence represents a commercing protein. Instituting protein contains an N-terminal fragment of human growth hormone (h681) of the sequence given in AAV42855, a cleavable peptide linker (AAV42857), and a human insulin precursor comperising insulin A and B chains (AAV42857). The help portion of the chimeric protein acts as an intramolecular chapterone (IMC) for the insulin precursor, can be intramolecular chapterone (IMC) tor the insulin precursor.

C enabling it to fold correctly. The cleavable peptide linker has a c-terminal Arg residue which enables the h6H portion of the chimeric protein to be removed after folding has taken place. Production of recombinant human insulin via an h6H profusulin chimeric protein can provide human insulin with correctly linked cysteine bridges with fewer necessary procedural steps, and hence resulting in a higher yield of hmman insulin with has an encorporations among the foling of the fused insulin precursor, facilitate the solubility of the fusion protein and decreae e the intermolecular incremetions among the fusion proteins, thus all wing folding of the tused insulin precursor at commercially useful high concentrations, the tuse of high the use of high concentration steps can thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic absorbent resins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 TPSNREETQQKSNLEHRISHLLIQSWLEPVQLGTGPRFVNQHLCGSHLVEALYLVCGER 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MEPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                         New chimeric proteins containing human growth hormone fragment, used particularly for the production of human insulin
                                                                                                                                                                                                                                    hGH-mini-proimsulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Growth hormone; chaperone; intramolecular; insulin; precursor; folding; conformation; chimeric protein; cleavable; recombinant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20: Length 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human growth hormone (hGH) N-terminal fragment #2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 555.5; DB Pred. No. 8e-28;
                                                                                                                                                                                                                                    This sequence represents a chimeric protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121 GEFYTPKIRGIVEQCCTSICSLYQLENYCN 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      92 AA
                                                                                                                                                                Claim 13; Page 30; 46pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   69.7%;
71.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98WO-CN00052.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAY42856 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98WO-CN00052.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match
Best Local Similarity 71.39
Matches 107, Conservative
WPI; 1999-610839/52.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  production; yield
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  W09950302-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-0CT-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAY42856;
```

```
19-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABG94861
   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NX A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tumour; inhibitor; maintain, program, y interneers, mayabyguite talease; tumour; inhibitor; maintain anqioibbroma; arteriovenous maiformation; arthritis; atherosclerotic plaques; corneal graft neovascularisation; wound healing; proliferative retinopathy; macular degeneration; trachoma; granulation; glaucoma; ocular; uvetis; fracture; Osler Weber syndrome; psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion; ulcer; leukaemia; reproductive disorder; contraceptive agent; per-eclampsia; intrauterine growth retardation; placental dysfunction;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; anti-anglogenic; prolactin; placental lactogen; hPL; anglogenesis; growth hormone; hGH; hGH-V; capillary endothelial cell proliferation; placental vascularisation; pregnancy; treatment; anglogenic disease;
                                                                                                                                                                          (hGH) which is a component of a chimeric protein (AAV42861) which are contains a human insulin precursor (AAV42859). The hGH portion of the chimeric protein acts as an intranolecular chapterone (IMC) for the insulin precursor, enabling it to fold correctly. A cleavable peptide linker with a C-terminal Arg residue (AAV42857) enables the hGH portion of the chimeric protein to be removed after folding has taken place. Production of recombinant human insulin via an hGH-proinsulin chimeric protein can provide human insulin with correctly linked cysteine bridges with fewer necessary procedural steps, and hence resulting in a higher yield of human insulin. The IMC sequences not only protect insulin sequences from intracellular degradation by a microorganism host, but also promote the folding of the fused insulin precursor, facilitate the solubility of the fusion protein and decrease the intermolecular chaptering among the fusion protein and decrease the intermolecular.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         interactions among the fusion proteins, thus allowing folding of the fused insulin precursor at commercially useful high concentrations. The procedural steps of cyanogen bromide cleavage, oxidative sulphitolysis
                                                                                                                                                                sequence represents an N-terminal fragment of human growth hormone
                                                                                                                                                                                                                                                                                                                                                                                                                      and related purification steps can thus be eliminated, along with the use of high concentrations of mercaptan or the use of hydrophobic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                      New chimeric proteins containing human growth hormone fragment, used particularly for the production of human insulin \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human anti-angiogenic peptide 16K hGH Met-1Prol33.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 470; DB 20;
Pred. No. 1.5e-22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59.0%; Scor.
100.0%; Pred. No. 1...
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 TPSNREETQQKSNLELLRISLLLIOSWLEPVQ 92
(TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAW92265 standard; Protein: 134
                                                                                                                                     Claim 5; Page 28; 46pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                         WPI; 1999-610839/52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
nes 92; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       92 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          absorbent resins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     domo saptens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                W09851323-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAW92265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAW92265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

```
requirings and recovering mail formation, arthritic such as rheumation arthritis, atherosclerotic plaques, corneal graft neovascularisation, delayed wound healing, proliberative retinopathy such as diabetic retinopathy, macular degeneration, granulations such as those occurring in haemophilic joints, inappropriate vascularisation in wound healing such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis, pyogenic glaucoma, retrolental fibroplasia, scheroderma, solid tumours, kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers, leukaemia, and reproductive disorders such as follicular and luteal cysts and choriocarcinoma. They can also be used as contraceptive agents. DNA encoding the poptides can be used in gene therapy. The measurement of abnormal levels of N-terminal Iraqments of high, hGH-V, prolator to help.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This invention describes novel human anti-angiogenic peptides derived from 10 to 150 consecutive amine acids selected from the N-terminal end of human placental latteger. (***I**), human growth hormone (hGH), growth hormone bariant (hGH**V), or he an productin. Such peptides (i) inhibit capillary endothelial cell preciferation and organisation (ii) inhibit angiogenesis in chick chorioallantoic membrane and (iii) binds to at least one specific receptor which does not bind an intact full length hGH, hPL, prolactin or hGH**V. The invention also describes a method for diagnosing a probable abnormality of placental vascularisation during pregnancy. The peptides can e used for treating an angiogenic disease in modulating vascularisation of patient's placenta. In particular, the peptides can be used for preventing or treating e.g. malignant tumours,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MFPT1PLSRLFDNAMLRAHRLHQLAFDTYQEFEEAY1PKEQKYSFLQNPQTSLSFSES1P 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MFPI1PLSRLEDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                               : - comprise N-terminal fragments of ...an growth hormone, growth hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59.0%; Score 470; DB 20; Length 134; 100.0%; Pred. No. 2e-22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .,
0
                                                                                                                                                                                                                      Weiner RI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TPSNREETQQKSNLELLRISLLLIQSWLEPVO 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.08; Pred. ....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human growth hormone mutant hPRL (111-129).
                                                                                                                                                                                                                      Taylor R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 4; Page 49-50; 87pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABG94861 standard; Protein; 191
98WO-US09691.
                                                                                                                                                                                                                                                                                                                                                                                                                                          human placental lactogen,
variant or human prolactin
                                                                                                                                                                                                                                                                                                                                                                                                           New anti-angiogenic pepti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-DEC-2002 (first entry)
                                                                                                                                                                                                                      Struman I,
                                                                                                                                              (REGC ) UNIV CALIFORNIA
                                                                                                                                                                                                                                                                                            WPI; 1999-045192/04.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134 AA:
                                                                                                                                                                                                                                                                                                                                  N-PSDB; AAX01707
   12-MAY-1998;
                                                                        13-MAY-1997;
                                                                                                                                                                                                                      Martial JA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABG94861;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 5
```

; 0

Page

62 PSNREETQOKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------H 108

109 LVEALYLVCGERGFFYTPKTRGIVEQ 134

g ó 5

```
of known amino acid sequence in a parent polypeptide e.g. human growth hormone (hGH) which has been cloned and has a pre-identified biological activity, where the active domain interacts with a target when the parent polypeptide is in its native-folded formed the interaction is responsible for the biological activity comprising: (a) comparing the amino acid sequence of polypeptide structure in the region of known amino acid sequence or polypeptide structure in the region of known amino acid sequence of an analogue polypeptide (e.g. prolactin, placental lactogen or porcine growth hormone) which has at least 15% homology with hGH alpha-carbon coordinates within about 2-3.5 angstroms of hGH alpha-carbon coordinates for about 60% of the analogue sequence, where any interaction of the analogue with the target is different from target interaction with hGH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (b) substituting DNA encoding an analogous polypeptide segment from the analogue into DNA encoding the full length hGH, and expressing a analogue into DNA encoding the full length hGH, and expressing a polypeptide with the target to determine interaction; (d) repeating steps (b) and (c) with a second analogous polypeptide segment; and (e) omparing the difference between activity of the first and second segment-substituted polypeptides as an indication of the location of the unknown active domain in hGH. The method is useful for determining the relationship between structure and function of known polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The invention relates to identifying an unknown active domain in a region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         acid sequence by substituting analog segments into the parent polypeptide is useful to determine the relationship between structure and function
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Identifying active domains within cloned polypeptides of known amino
                Growth hormone; placental lactogen; prolactin; active domain; hGH; structure-function relationship; segment-substituted polypeptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 1; Page -; 86pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                              Cunningham BC;
                                                                                                                                                                                                                                                                                                                                                                                       (GETH ) GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2002-696875/75.
                                                     mutant; mutein.
                                                                                                                                                                                                                                                                                        27-APR-1992;
13-OCT-1992;
02-FEB-1994;
28-OCT-1988;
                                                                                            Homo sapiens.
Synthetic.
                                                                                                                                                    US6428954-B1.
                                                                                                                                                                                                                                06-JUN-1995;
                                                                                                                                                                                         06-AUG-2002
                                                                                                                                                                                                                                                                        26-0CT-1989,
                                                                                                                                                                                                                                                                                                                                                                                                                            Wells JA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Seguence
```

89US-0428066. 92US-0875204. 92US-0960227. 94US-0190723. 88US-0264611.

95US-0483039

sequences. The present sequence is that of human growth hormone mutant substituted with residues from an hGH analogue (prolactin, placental lactogen or porcine growth hormone).

Note: The present sequence is not shown in the specification but was created by the indexer using the mature hGH sequence and information contained in the specification. Length 191; 59.0%; Score 470; DB 23; 69.2%; Pred. No. 2.6e-22; Similarity 191 AA; Query Match Local

61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLV 110 61 TPSNREETQQKSNLELI SLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119 The invention consists of a vector contg. a fusion protein which is formed by ligating, downstream of a promoter, hGH or a deriv. (pref. formed by subtstn. of Met-14 with Leu) and a foreign protein. Stability of the vector in the host is greatly increased so the protein yield is higher.
(Updated on 25-MAR-2003 to prect PA field.) protein - consisting of human i to foreign protein, for stability 16; 58.5%; Score 466; DB 10; Length 192; ilarity 70.5%; Pred. No. 4.6e-22; Conservative 7; Mismatches 20; Indels 10 Human growth hormone; fusion protein; recombinant 120 EGIQTLMGRLEDG---SPRTGQIFKQ 142 111 EALYLVCG -- ERGFFYTPKTRGIVEQ 134 Ş Disclosure: Fig 1; 19pp; Japan se. AAP90129 standard; protein; 192 growth hormone or deriv. lig-and high yield. 87JP-0304937 (WAKI) WAKUNAGA SEIYAKU KK 87JP-0304937 (first entry) (updated) (revised) Human growth hormone. Homo sapiens (Human) WPI; 1989-209284/29. Query Match Best Local Similarity Matches 103; Conserv 192 AA; N-PSDB; AAN90269 02-DEC-1987; 02-DEC-1987; JP01144981-A 06-FEB-1996 01-NOV-1989 07-JUN-1989. 25-MAR-2003 Seguence AAP90129; vector. AAP90129 a ô a ò

RESULT 7 AAW92264

61

18;

19; Indels

8; Mismatches

Matches 101; Conservative

õ

1 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT

192 AA;

Sequence

တ္တ

This invention describes novel human anti-anglogenic peptides derived from 10 to 150 consecutive amino acids selected from the N-terminal end of from 10 to 150 consecutive amino acids selected from the N-terminal end combined by the consecutive amino acids selected from the N-terminal end combined by the consecutive Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis; growth hormone, hGH-V; capillary endothelial cell proliferation: placental vascularisation; pregnancy; treatment: angiogenic disease; tumour; inhibitor; maliqnant; angiofibroma; arteriovenous maliormation; arthritis; atherosclerotic plaques; corneal graft neovascularisation; granulation; glaucoma; ocular, uveitis; fracture; osler-Weber syndrome; psoriasis; fibroplasia; scleroderma; Kapc i's sarcoma; vascular adhesion; dler; letakemia; reproductive disorder; contraceptive agent; gene therapy; pre-eclampsia; intrauterine growth retardation; placental dysfunction. New anti-angiogenic peptides - comprise N-terminal fragments of human placental lactogen, human growth $h\varepsilon$ mone, growth hormone variant or human prolactin Weiner RI; Human anti-angiogenic peptide hGH Met-1Phe191. Taylor R, AAW92264 standard; Protein; 192 AA Example 3; Page 49; 87pp; English. 98WO-US09691. 97US-0046394 (first entry) Struman I, (REGC) UNIV CALIFORNIA WPI; 1999-045192/04. N-PSDB; AAX01706 Homo sapiens W09851323-A1 12-MAY-1998; 13-MAY-1997; Martial JA, 08-JUN-1999

```
ô
                                                                                                                  61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLV 110
                                                                                                                                   61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119
                                                         1 MFPTIPLSRLFDNAMLRAH: HQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
                                                                         1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein, which contains a thrombin recognition site, and human beta n growth factor (beta-NGF) at the C-terminal. Beta-NGF can be used to control geriatric dementia and other nervous disorders, and can be released from the fusion protein by incubation with thrombin (see AAN90577-8, AAP91034, AAP91299).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New human nervo growth factor gene encoding fusion protein - having cleavage site for thrombin, useful for treating genatric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human growth hormone segment, used at the N-terminal of a fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
 Length 192;
                                                                                                                                                                                                                                                                                                                                                                                                                   geriatric dementia; nervous d sorders; human nerve factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                             Indels
Score 466; DB 20;
Pred. No. 4.6e-22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            58.3%; Score 465; DB 10; 98.9%; Pred. No. 4.2e-22;
                                                                                                                                                                                                                                                                                                                                                                                                     Human growth hormone; fusion (lotein; thrombin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                             7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                      120 ECIQILMGRLEDG --- SPRTGQIFKQ 142
                                                                                                                                                                             111 EALYLVCG -- ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Disclosure; page 21; 38pp; English.
                                                                                                                                                                                                                                                                                AAP91041 standard; protein: 46
58.58;
70.58;
                                                                                                                                                                                                                                                                                                                                                                        Human growth hormone segment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       89EP-0102795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88JP-0035042
                                                                                                                                                                                                                                                                                                                                             (first entry)
              Best Local Similarity 70.5
Matches 103; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens (human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1989-243092/34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (TOYJ ) TOSOH CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 140 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dementia, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-FEB-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-FEB-1988;
                                                                                                                                                                                                                                                                                                                                           14-DEC-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23-AUG-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EP329175-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ohtsuka E;
                                                                                                                                                                                                                                                                                                              AAP91041;
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                     AAP9104
                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                  õ
                                                                                                                                                a
                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ó
```

9

```
(first entry)
                                                                                                                                                       WPI; 1991-128768/18.
                                                                                                                                       (TOYJ ) TOSOH CORP.
                                                                                                                                                                                                                                                                                              262 AA;
                                                                                                                                                                N-PSDB; AAQ11578
                                                                   JP03067598-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JP02013375-A.
                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-JUL-1988;
                                                                                                     07-AUG-1989;
                                                                                                                      07-AUG-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-JUL-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-JUL-1988;
25-JUN-1991
                                                                                    22-MAR-1991
                                                                                                                                                                                                                                                                                               Sednouse
                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                  urea
                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR032
ò
                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                 3
                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                    Fusion protein consisting of human growth hormone at the terminal end (1st region), a 3 amino acid sequence representing thrombin recognition site, and human beta nerve arowth factor (tetra-NEY) at the C-terminal. Beta-NGF can be used to control geriatric demential and other nervous disorders, and can be released from the fusion protein by incubation with thrombin (see AAN90577-8, AAP91034.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MFPTIPLSRLFDNAMLRAHRLHQLAFOTYQEFEEAYIPKEOKYSFLQNPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                       New human nerve growth factor gene encoding fusion protein - having cleavage site for thrombin, usefol for treating geriatric
                                                                                             Human nerve growth factor and human growth hormone fusion protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 261;
                                                                                                              Human nerve growth factor; fusion protein: thrombin; gerlatric dementia; nervous disorders; human growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 465; DB 10;
Pred. No. 6.8e-22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                       Claim 36; page 31-32; 38pp; English.
                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR11740 standard; Protein; 262 AA.
                                         AAP91299 standard; protein; 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                          58.38;
98.98;
                                                                                                                                                                                                                                                   88JP-0035042
                                                                                                                                                                                                                                  89EP-0102795
                                                                            14-DEC-1989 (first entry).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           91; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (updated)
                                                                                                                                        Homo sapiens (human).
                                                                                                                                                                                                                                                                                                     WPI; 1989-243092/34
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                          261 AA;
                                                                                                                                                                                                                                                                    HOSOT ( LYOT
                                                                                                                                                                                                                                                                                                                                        dementia, etc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25-MAR-2003
                                                                                                                                                                                                                                                   19-FEB-1988;
                                                                                                                                                                                                                  23-AUG-1989
                                                                                                                                                                                                EP329175-A
                                                                                                                                                                                                                                                                                     Ohtsuka E;
                                                                                                                                                                                                                                                                                                                                                                                                                                           Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR11740;
                                                            AAP91299;
                                                                                                                                                        Key
Region
                                                                                                                                                                          Region
                                                                                                                                                                                 Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR11740
ID AAR1
XX
AC AAR1
XX
DT 25-W
                                    AAP91299
                          RESULT
                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
 g
```

```
1 MFPTIPLSRLFDNAMLRAHRIHQLAFDTYQEFEEAYIPKEQKYSFLUNPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A recombinant human nerve growth factor beta subunit-conty, protein can be produced as this fusion protein. It is purified by contacting a gel having a cation exchange qp. with the fusion protein, in the presence of urea. The purified protein is useful in a medicament for treating disorders of the nervous system, eg dementia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Purifich, of human neuron growth factor beta subunit-conty, protein by contacting with gel having cation exchange gp. in presence of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B-cell stimulatory factor-2; interleukin-6; B-cell differentiation; interleukin-5; fusion protein.
Human growth hormone/human nerve growth factor beta fusion protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        58.3%; Score 465; DB 12; Length 262; 98.9%; Pred. No. 6.8e-22; ive 0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fusion protein of B-cell stimulatory factor-2 and B-cell differentiation factor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6) TPSNREETQOKSNLEDATSTULLGSWLEPVO 92
11 - 111111-11111-11111-1
6) TPSNREETQOKSNLEDAK(SILDOQSWLEFVO 92
                                                                  hGH; hNGF; nervous system diseases; dementia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR03255 standard; protein; 310 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure ; fig 1; 7pp: Japanese.
                                                                                                                                                                                                                                                                                                                                        89JP-0202835
                                                                                                                                                                                                                                                                                                                                                                                                          89JP-0202835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88JP-0162556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88JP-0162556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 98.9
Matches 91; Conservative
```

0

```
Claim 10; Page -; 74pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cunningham BC;
                                                                                                                                                                                                    Sequence 191 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mutant; mutein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US6428954-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-OCT-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                               03-DEC-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27-APR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-OCT-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          06-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13-0CT-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wells JA,
                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                              ABG94860;
                                                                                                                                                      hormone
                                                                                                                                                                                                                                                                                                                                                                                        RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                  ABC94860
  g
                                                                                                                                                                                                                                                                                                  ó
                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                    1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
                                                                                                                                                                                                             New conjugates exhibiting growth hormone activity, useful for treating a disease or for manufacturing a medicament for treating a disease, e.g. Turner's syndrome, growth hormone deficiency, achondroplasia, AIDS wasting or cachexia -
                                                                                                                                                                                                                                                                                                                                                                                    Human: growth hormone; hGH: Turner's syndrome; achondroplasia:
growth hormone deficiency in adults; GHDA; chroni: renal insufficiency;
renal failure in children; acquired immune deficit ory syndrome; AIDS;
AIDS wasting; cachexia; mutant; mutein.
                                                                                                      DNA encoding BDF (IL-) with DNA the product into an expression vector
                                                                                                                                                                                  Gaps
                                            Prepn. of human B-cell differentiation factor - from specified DNA sequence segment, by recombinant DNA technique, gives protein of specified amino acid sequence.
                                                                                                                                                                                 ·.
                                                                                                                                                                Length 310;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note= "Wild type Arg substituted by Lys"
                                                                                                                                                                                 Indels
                                                                                                                                                              58.3%; Score 465; DB 11; 98.9%; Pred. No. 7.7e-22; iive 0; Mismatches 1;
                                                                                                                                                                                                                                        Mature human growth hormone (hGH), mutant #4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Andersen KV, Drustrup J, Christiansen J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                          ABG31862 standard; Protein; 191 AA
                                                                                                     The protein is produced by fusing encoding BSF-2 (IL-5)and ligating See also AAR05311 and AAR05313.
                                                                                    Claim 31; Page 9; 17pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (MAXY-) MAXYGEN APS.
(MAXY-) MAXYGEN HOLDINGS LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11-JAN-2001; 2001DK-0000042.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10-JAN-2002; 2002WO-DK00017
                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                        Best Local Similarity 98.9
Matches 91; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2002-608345/65.
                  WPI: 1990-062207/09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Misc-difference 134
(TOYJ ) TOSOH CORP.
                                                                                                                                            310 AA;
                            N-PSDB; AAQ02028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200255532-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
Synthetic.
                                                                                                                                                                                                                                                                                                                                                05-NOV-2002
                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                              ABG31862;
                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                         RESULT 12
                                                                                                                                                                                                                                                                                                  ABG31862
  q
```

```
4
The invention relates to new conjugates, which exhibit growth hormone (GH) activity and comprise at least one non-polypeptide group covalently attached to a GH polypeptide. The amino acid sequence of the conjugates differs from that of wild type human GH in at least one introduced and at least one removed amino acid residue comprising an attactment group for the first non-polypeptide group. The conjugate or pharmaccultual composition is useful for treating a disease or for manufacturing a medicament for treating a disease, e.g. Turner's syndrome. GH deliciency in adults (i.e. GHDA), achondroplasia, chronic renal insufficiency or failure (including renal failure in children), acquired immune deliciency syndrome (ALDS) wasting, cachexia in AIDS patients, or cachexia associated with other diseases. The conjugates are useful ifor treating a variety of disorders caused by growth hormone inadequacy. The present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLEE 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNOHLCGS------HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Note: The present sequence is not shown in the specification but is derived from the wild type human growth hormone sequence given in SEQ No.2 (see ABG31857).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYGEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FPTIPLSRLFONAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLONPQTSLCFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Growth hormone; placental lactoden; prolactin; active domain; hGH; structure-function relationship; segment-substituted polypeptide:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  core 464; DB 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human growth hormone mutant 525 (109-112).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              112 ALYLVCG--ERGFFYTPKTRGIVEO 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOILMGRIEDG --- SPKTGOIFKO 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABG94860 standard; Protein; 1/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  58.2%;
71.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         95US-0483039.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            92US-0875204
92US-0960227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89US-0428066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94US-0190723
88US-0264611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 71.0
Matches 103; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GETH ) GENENTECH INC.
```

US6428954-B1

Synthetic.

06-AUG-2002

```
of known amino acid sequence in a parent polypeptide e.g. human growth promone (f08) which has been cloned and has a pre-identified biological activity, where the active domain interacts with a target when the polypeptide is in its native-loided form and the interaction is responsible for the biological activity corpressing; (a) comparing the amino acid sequence or polypeptide structure in the region of known amino acid sequence or polypeptide structure in the project of known amino acid sequence of ngl with the amino acid sequence of an analogue polypeptide (e.g. prolactin, placental lactogen or portine growth hormone) which has at least 15% homology with hGH alpha-carbon coordinates within about 2.3.5 angstroms of hGH alpha-carbon coordinates for about 60% of the analogue sequence, where any interaction of the analogue with the target is different from target interaction with hGH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (b) substituting DNA encoding an analogous polypeptide segment from the analogous into DNA encoding the full length hGH, and expressing a segment-substituted polypeptide; (c) contacting the Segment substituted polypeptide; (c) contacting the Segment substituted polypeptide segment segment substituted second analogous polypeptide segment; and (c) and (c) with a second analogous polypeptide segment; and second segment-substituted polypeptides as an indication of the location of the unknown active domain in hGH; the medical segment structure and function of known polypeptide segments. The present sequence is that of human growth homone
                                                                                                                                                                                                                                                           the invention relates to identifying an unknown active domain in a region
                                                   Identifying active domains within cloned polypeptifes of known amino acid sequence by substituting analog segments into the parent polypeptide is useful to determine the relationship between structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mutant substituted with residues from an hGH analogue (prolactin, placental lactogen or porcine growth hormone).

Note: The present sequence is not shown in the specification but was created by the indexer using the mature hGH sequence and information contained in the specification.
                                                                                                                                                                                                    Example 1; Page -; 86pp; English
MPI; 2002-696875/75
                                                                                                                                                 function
```

191 AA; Sednence

61 PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSUDYHLLKDLEE 119 62 PSNREETQOKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV----E 111 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSF1.ONPQTSLSFSESIPT 61 Gaps 16; 18; Indels 58.1%; Score 463; DB 23; 71.0%; Pred. No. 7.1e-22; 8; Mismatches 112 ALYLVCG -- ERGFFYTPKTRGIVEQ 134 120 GIQTLMGRLEDG---SPRTGQIFKQ 141 Matches 103; Conservative Similarity Query Match Local g ò a ò

Growth hormone; placental lactogen; prolactin; active domain; hGH; structure-function relationship; segment-substituted polypeptide; mutant; mutein. ABG94977 standard; Protein; 191 AA Human growth hormone mutant Y103A. (first entry) 03-DEC-2002 ABG94977; RESULT 14 ABG94977

Homo sapiens

The invention relates to identifying an unknown active domain in a region of known amino acid sequence in a parent polypeptide e.g. thuman growth hormone (hGH) which has been cloned and has a pre-identified biological activity, where the active domain interacts with a target when the polypeptide is in its native-folded form and the interaction is capposible for the biological activity comprising: (a) comparing the amino acid sequence or polypeptide structure in the region of known amino acid sequence of hGH with the amino acid sequence or polypeptide structure in a region of known amino acid sequence of an analogue polypeptide (e.g. prolact: placental lactogen or porcine growth hormone) which has at leas 18% homology with hGH alpha-carbon coordinates (b) substituting DNA encoding an analogous polypeptide segment from the analogue into DNA encoding the fill length hGH, and expressing a segment-substituted polypeptide; (c) contacting the segment-substituted polypeptide with the target to determine interaction; (d) repeating steps (b) and (c) with a second analogous polypeptide segment; and (e) comparing the difference between activity of the first and second for about 60% of the analogue, sequence, where any interaction of the analogue with the target is different from target interaction with hGH; the unknows active domain in hGH. The method is useful for determining the relationship between structure and function of known polypeptide sequences. The present sequence is that of human growth hormone mutant substituted at functionally important residues and used in Identifying active domains within cloned polypeptides of known amino acid sequence by substituting analog segments into the parent polypeptide is useful to determine the relationship between structure Note: The present sequence is not shown in the specification but was created by the indexer using the mature hGH sequence and information contained in the specification. segment-substituted polypeptides as an indication of the location of Example 16; Page -; 86pp; English. 89US-042H066. 92US-0875204. 92US-0960227. 94US-0190723. the method of the invention. 95US-0483U39 88US-0264611 Wells JA, Cunningham BC: (GETH) GENENTECH INC. WPI; 2002-696875/75. 191 AA; and function 06-JUN-1995; 13 · OCT - 1992; 02-FEB-1994; 28-OCT-19P8; 27 - APR- 1992 Sequence

Gaps 16; 58.1%; Score 463; DB 23; Length 191; 70.3%; P ed. No. 7.1e-22; Live 7; Mismatches 20; Indels 16 Local Similarity 70.3 es 102; Conservative Query Match Matches 셤

> õ g

120 GIQTLMGRLEDG---SPRTGQIFKQ 141

g

```
The sequence encoding this protein can be fused with DNA encoding B-ceil differentiation factor (IL-6) and ligated into an expression vector tor prodn. of a fusion protein. See also AAR05311.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                  Prepn. of human B-cell differentiation factor - from specified DNA sequence segment, by recombinant DNA technique, gives protein of specified amino acid sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                               58.0%; Score 462; DB 11; Length 144; 97.8%; Pred. No. 6.6e-22; Live 1; Mismatches 1; Indels (
                                                                                        Segment of B-cell stimulatory factor-2 (IL-5).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B-cell stimulatory factor-2; interleukin-5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Search completed: September 16, 2003, 12:38:27 Job time: 45.358 secs
                       AAR05313 standard; protein; 144 AA
                                                                                                                                                                                                                                                                                                                                              Disclosure; Page 9; 17pp; Japanese
                                                                                                                                                                                                    88JP-0162556.
                                                                                                                                                                                                                         88JP-0162556.
                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity 97.8 90; Conservative
                                                                                                                                                                                                                                                                   WPI; 1990-062207/09.
N-PSDB; AAQ02028.
                                                                                                                                                                                                                                              (TOYJ ) TOSOH CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 144 AA;
                                                                                                                                                         JP02013375-A.
                                                                                                                                    Homo sapiens.
                                                                                                                                                                                                    01-JUL-1988;
                                                                                                                                                                                                                         01-JUL-1988;
                                                                  19-JUL-1990
                                                                                                                                                                              17-JAN-1990.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 90;
                                            AAR05313;
RESULT 15
AAR05313
                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                αa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DP
```

0:

us-09-423-100-7.rai

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

OM protein - protein search, using sw model

September 16, 2003, 12:37:10 : Search time 23.93 Seconds (without alignments) 265.217 Million cell updates/sec Run on:

Perfect score:

US-09-423-100-7
797
1 MEPTIPLSRLEDNAMLRAHRIVEOCCTSICSLYQLENYCN 150 Sequence:

Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

328717 seqs, 42310858 residues

Searched:

328717 Total number of hits satisfying chosen parameters:

length: 0 length: 2000000000 Minimum DB seq Maximum DB seq

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database

5: /cgn2_6/ptodata/l/iaa/PCTUS_COMB.pcp:*
6: /cgn2_6/ptodata/l/iaa/Dackfilesl.pep:* 1: /cgn2_6/ptodata/1/laa/5A_COMB.pep:*
2: /cgn2_6/ptodata/1/laa/5B_COMB.pep:*
3: /cgn2_6/ptodata/1/laa/5A_COMB.pep:*
4: /cgn2_6/ptodata/1/laa/6B_COMB.pep:* Issued_Patents_AA:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total sore distribution.

		đ			SUMMARIES		
Result No.	Score	Query Match	Length	0.8	10	Description	
-	466		192	-	US-08-093-383-1	Sequence 1. Appli	
7	461	•	191	4	35-09-284-878-5	S	
m	461	٠	194	7	-08-383	4	
₹7	461	57.8	194	m	-08-45	Sequence 4. Appli	
'n	461		217	٣	-08-589	10	
9	461		217	٣	-08-784-	10.	
7	461		217	m	US-08-785-271-10	10.	
œ	461	57.8	217	٣	-159-	11,	
σ'n	461	•	217	4	-60	1,	
10	461	٠	241	4	-60	25,	
11	461	•	245	4	9-280-03	.99	
12	461		274	٣	-08	71,	
13	461		360	٣	8-784	73,	
14	455	57.1	191	4	US-09-465-461-1	1, A	
15	455	57.1	217	٦	-08	4	
16	455	57.1	217	-	US-08-469-486-51	Sequence 51, Appl	
17	455	57.1	217	7	- 80-4	51	
18	455	57.1	217	7	- 80 -	4	
19	455	57.1	217	4	-09	4	
20	454		400	4	ç	37,	
21	454	57.0	401	4	-09-420-	36,	
22	448		191	m	-80-		
23	446		191	m	-08-80-	16,	
24	446		191	٣	-08-800-2	20,	
25	365.5	45.9	176	m	-08	1, A	
26	365.5		176	4	-240-77	_;	
27	359.5	45.1	176	٣	US-08-791-728-2	Sequence 2, Appli	

, Appli	5424199	, Appli	. Appli	, Appli	Appli	. Appli	9, Appl	9, Appl	8, Appl	8, Appl	5. Appl	5, Appl	, Appli		, Appli	, Appli	, Appli
Sednence	Patent No.	Sequence 5, Appli	Sequence	Sequence	Sednence	Sednence	Sedmontes	Sequence	Sequence 4	Sequence 4	Sequence 4	Sequence 4	Sequence 8,	Segmence	Sequence 4	Sequence	Sequence 2
US-08-990-774-2	5424199-3	US-08-187-756C-5	US-08-710-324A-5	US-09-411-657-5	US-08-160-376A-5	1 -08-389-487-8	L:-68-400-256-39	US-08-975-365-39	US-08-400-256-48	US-CR-975-365-48	US-08-400-256-45	US-08-975-365-45	US-08-468-824-8	05-09-105-651-1	US-U7-963-331D-4	US-08-160-376A-6	US-08-388-267C-2
4	9	-	7	4	7	-	٦	~	-	٣	-	·~	~	~	-	-	
176	168	198	198	158	96	96	137	137	146	146	145	145	191	216	191	63	190
45.1	43.0	42.0	42.0	42.0	39.7	39.7	39.4	39.4	38.8	38.8	38.8	38.8	38.5	38.5	38.2	38.1	37.8
359.5	343	334.5	334.5	334.5	316.5	316.5	314	314	309.5	309.5	309	309	306.5	306.5	304.5	304	301.5
28	29	30	31	32	33	34	35	36	37	38	39	0 7	4 1	42	43	44	4.5

ALIGNMENTS

```
APPLICANT: DeBoor, Herman A.
APPLICANT: Beyneker, Herbert L.
APPLICANT: Seeburg, Peter H.
TITLE OF INVENTION: Day for Expression of Bovine Growth Hormone NUMBER OF SEQUENCES: 30
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 94080
COMPUTER READBLE FORM:
MEDIUM TYPE: 5.25 inch, 360 kb 110ppy disk
COMPUTER READING SYSIEM:
OPERATING SYSIEM:
FO-DESAMS LESS
SOFTWARE: 94110 (Generated))
CURRENT APPLICATION DATA:
APPLICATION NUMBER: 35/20/095.483
FILING DATE: 14-JUL.1953
CLASSIFICATION DATA:
APPLICATION NUMBER: 07/19827
FILING DATE: 28-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/19824
FILING DATE: 05-APR-1988
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 06/632361
FILING DATE: 19-JUL.1984
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 06/632361
FILING DATE: 19-JUL.1984
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 06/33361
FILING DATE: 19-JUL.1984
ATTORIEY AGENT INFORMATION:
AMOUNT TAKEN AND ADDITE: 38-SEP-1981
ATTORIEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                ADDRESSEE: Genentech, Inc.
STREET: 460 Point San Bruso Blvd
CITY: South San Francisco
STATE: California
COUNTRY: USA
                            Sequence 1, Application US/U8093383
Patent No. 5489529
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Johnston, Sean A.
RECISTRATION NUMBER: P35,910
REFERENCE/DOCKET NUMBER: 4664
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415/225-3862
TELEFAX: 415/952-9881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: 415/952-9881
TELEX: 910/371-7168
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 192 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                              94080
US-08-093-383-1
```

```
STATE: New Jersey COUNTRY: U.S.A.
                                                                                                                               06904-0060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: Wayne
STATE: New J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-459-906-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Olazaran, Martha Guerrero
APPLICANT: Saldana, Hugo Barrera
APPLICANT: Saldana, Hugo Barrera
APPLICANT: Salvado, Jose Maria Viader
TITLE OF INVENTION: Genetically Viader
TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone
FILE REFERENCE: 1829.0010000
CURRENT APPLICATION NUMBER: US/09/284,878
CURRENT FILING DATE: 1999-07-21
PRIOR APPLICATION NUMBER: PCT/MX97/00033
PRIOR APPLICATION NOWBER: PCT/MX97/00033
PRIOR FILING DATE: 1997-10-24
NUMBER OF SEQ ID NOS: 9
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 PSNREETQQKSNLELLRISELLIQSMLEPVQF-LRSVFANSLVYGASOSNVYDLLKDLEE 119
                                                                                                                                                                                                                      62 PSNREETQQKSNLELLRISLLI, IQSWLEPVQLGTGPRFVNQHLCGS------ HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFL,ONPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: Stabilization Of Somatotropins And Other TITLE OF INVENTION: Proteins By Modification Of Cysteine Residues
                                                                                                 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 57.8%; Score 461; DB 4; Length 191; Best Local Similarity 70.3%; Pred. No. 3.7e-42; Matches 102; Conservative 7; Mismatches 20; Indels
                                                      Ouery Match 58.5%; Score 466; DB 1; Length 192; Best Local Similarity 70.5%; Pred. No. 1.1e-42; Matches 103; Conservative 7; Mismatches 20; Indels
                                                                                                                                                                                                                                                                                                                                111 EALYLVCG--ERGFFYTPKTRGIVEO 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           112 ALYLVCG--ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 4, Application US/08383621
Patent No. 595392
GENERAL INFORMATION:
APPLICANT: Daley, Michael J.
APPLICANT: Buckwalter, Brian L.
APPLICANT: Cady, Susan M.
APPLICANT: Shieh, Hong-Ming
APPLICANT: Scheh, Peter
APPLICANT: Seddon, Andrew P.
                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 5, Application US/09284878
Patent No. 6342375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: PRT
; ORGANISM: Homo saptens
US-09-284-878-5
; TOPOLOGY: linear
US-08-093-383-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGIH: 191
                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 2
US-09-284-878-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-383-621-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
```

```
62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4 FPTIPLISHITHTHISTITHTHISTITHTHISTITHTHISTITHTHISTITHTHIST 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 FPTIPLSRLFDNAMJRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSFPF 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Saps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:

APPLICANT: Dalcy, Michael J.

APPLICANT: Buckwalter, Brian L.

APPLICANT: Gady, Susan M.

APPLICANT: Shich, Hong-Ming

APPLICANT: Boblen, Peter

APPLICANT: Boblen, Peter

APPLICANT: Seddon, Andrew P.

TITLE OF INVENTION: Stabilization of Somatotropins and Other

TITLE OF INVENTION: Proteins by Modification of Cysteine Residues

NUMBER OF SEQUENCES: 11

CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 194:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  57.8%; S ore 461; DB 2; Length 194
70.3%; Pred. No. 3.8e-42;
Live 7; Mismatches 20; Indels
                                                                                                                                                                                                                                                                   0, Version #1.25
CORRESPONDENCE ADDRESS:
ADDRESSEE: Dr. Estelle J. Tsevdos
STREET: 1937 West Main Street, P.O. Box 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE: American Cyanamid Company
                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/766,142
FILING DATE: 25-SEP-1991
ATTORNEY/AGENT INFORMATION:
NAME: TSEVGOS, ES:Elle J.
REGISTATION NUMBER: 31,145
REFERENCE/DOCKET NUMBER: 31,278-91
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112 ALYLVOS - ERGFFYTPKTRSIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              123 GIQTLMGRLEDG: SPRIGGIFKQ 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31,278-91
                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08/383,621
FILING DATE: 06-FEB-1995
CLASSIFICATION: 514
                                                                                                                                                           COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                 SOFTWARE: Patentin Release #1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 4, Application US/08459906
Patent No. 6010999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   One Cyanamid Plaza
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: 203-710-474-4059
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   203-321-2756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 194 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 57.8 Best Local Similarity 70.3 Matches 102; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ) MOLECULE TYPE: protein US-08-383-621-4
                                                                       CITY: Stamford
STATE: Connecticut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
```

```
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/::4,582
FILING DATE: Concurrently Herewith
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                      57.8%; Secre 461; DB 3; 70.3%; Pred. No. 4.4e-42;
                                                                                                                                                                                                                                                                                                                                                                              7; Mismatches
                  NAME: Highlander, Steven L
REGISTRATION NUMBER: 47.642
REFERENCE/DOCKET NUMBER: UTSD:426\HYL
TELECOMMUNICATION INFORMATION:
FELEPAX: (512) 418-3000
TELEFAX: (512) 444-7577
INFORMATION FOR SEQ ID NO: 10:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 60/028,427
FILING DATE: 15-02T-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/589,028
FILING DATE: 19-JAN-1996
ATTORNEY/AGENT INFORMATION:
NAME: Highlander, Steven L.
REGIS"RATION NUMBER: 37,642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   112 ALYLVCG -- ERGFFYTPKTRGIVEO 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Newgard, Chr.L. wher B. APPLICANT: Halban, Philip, A. APPLICANT: No 6110707minquon, Karl APPLICANT: Clark, Samuel A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arnold, White & Darkee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 10, Application US/08784582 Patent No. 6110707 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E: Floppy disk
IBM PC compatible
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                              LENGTH: 217 amino acids
TYPE: amino acid
STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 70.3%
Matches 102; Conservative
                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: P.O. BOX 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: USA
ZIP: 77210
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: ATHOLD, W
                                                                                                                                                                                                                                                                         inear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER:
                                                                                                                                                                                                                                                                         , TOPOLOG :
US-08-589-028-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 6
US-08-784-582-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64 PSNREETQQKSNLELLRISLLLIQSWLEPVQF.LRSVFANSLVYGASDSNVYDLLKDLEE 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4 FPTIPLSRLFDNAMLRAHRLHQLAFDIYQEFEEAXIPKEQKYSFLQNPQTSLCFSESIPT 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 FPIIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Newgard, Christopher H.
APPLICANT: Newgard, Christopher H.
APPLICANT: No. 6087129mington, Karl D.
APPLICANT: O. 6087129mington, Karl D.
APPLICANT: Clark, Samuel A.
APPLICANT: Thigpen, Anice E.
APPLICANT: Clark, Samuel E.
APPLICANT: Nuse, Fred
TITLE OF INVENTION: Recombinant Expression of Proteins From TITLE OF INVENTION: Secretory Cell Lines
NUMBER OF SEQUENCES: 50
CORRESPONDENCE ADDRESS:
ADDRESSEE: Arnold, White & Durkee
STREET: P. O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            57.8%; Score 461; DB 3; Length 194;
70.3%; Pred. No. 3.8e-42;
Live 7: Mismatches 20; Indels 16;
                                                                                                     CURRENT APPLICATION DATA:
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/459,906
FILING DATE: 02-JUN-1995
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Webster, Darryl L.
REGISTRATION NUMBER: 31,276
REFERENCE/DOCKET NUMBER: 31,278-03
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION 199305
TELEPRAS: 201-831-3247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: ISH PC compatible
COPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 112 ALYLVCG - - ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/08/589,028
FILING DATE: Concurrently Herewith
CLASSIFICATION: 435
                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 10, Application US/08589028 Patent No. 6087129
                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: 1100-1
                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 70.33
Matches 102; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE: protein US-08-459-906-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: USA
ZIP: 77210-4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-589-028-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
· HI.VE 111
                                                                                                                           27 FPIIPLSRLEDNAMLRAHRIAQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86
                                                                                                   2 FPTIPLSRLFDNAMLKAHRLHQLAFDTYQEFEEAYIPKEQKYSFLUNPQISLSFSESIPT 61
                                                    Gaps
                                              20; Indels 15;
                                                                                                                                                                                                        62 PSNREETQQKSNLELLKISLLLIQSWLEPVQLGTGPRFVNQHLCGS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Thigpen, Anice E.
APPLICANT: Quaade, Christian
APPLICANT: Kruse, Free
APPLICANT: McGarry, Dennis
TITLE OF INVENTION: RECOMBLAGNE EXPRESSION OF PROTEINS FROM
TITLE OF INVENTION: SECRETORY CELL LINES
Length 217;
```

```
112 ALYLVCG -- ERGFFYTPKTRGIVEG 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DAIA:
APPLICATION NOMBER: US 60/008,5/4
FILING DAIE: 06-060-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Ching, Edwin P.
REGISTRATION NUMBER: 34,090
REFERENCE/DOCKET NUMBER: DX055
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-496-1200
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 217 amino acids
                                                                                                     57.8%;
                                                                                                          Query Match
Best Local Similarity 70.39
Matches 102; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: protein FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET: 901 Califo
CITY: Palo Alto
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Peptide
94..115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: amino acid
STRANDEDNESS: sin
TOPOLOGY: linear
                                              ; TOPOLOGY: linear
US-08-785-271-10
                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY:
LOCATION:
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 8
US-08-759-628-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                               Ç
                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                              62 PSNREETQQKSNLELLRISILLIQSWLEPVQLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                                                                                                                                                                                                                                     2 PPTIPLSRLFDNAMLRAHRLHQLAFPTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                            57.8%; Score 461; DB 3; Length 217;
70.3%; Pred. No. 4.4e-42;
tive 7; Mismatches 20; Indels 16; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Howgard, Christopher B.
APPLICANT: Howgard, Christopher B.
APPLICANT: Howgard, Christopher B.
APPLICANT: How of 194176mington, Karl D.
APPLICANT: Thippen A.
APPLICANT: Thippen A.
APPLICANT: Quade, Christian
APLICANT: Whise, Fred
TITLE OF INVENTION: RECOMBINANT EXPRESSION OF FROITINS FROM TITLE OF INVENTION: SECRETORY CELL LINES
NUMBER OF SEQUENCES: $6
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER TRADABLE FORM:
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: Floppy disk
COMPUTER: Bum PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/785_271
FILING DATE: Concurrently Herewith
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/589,028
FILING DATE: 19-JAM-1996
FILING DATE: 19-JAM-1996
ATTORNEY/ACENT INFORMATION:
NAME: Highlander, Steven L.
REGISTRATION NUMBER: 37 642
REFERENCE/DOCKET NUMBER: 37 642
REFERENCE/DOCKET NUMBER: 1075.513
FELECOMMUNICATION INFORMATION:
TELEPHONE: 512/418 3000
TELEFANS: 512/418 3000
TELEFANS: 512/474-7577
INFORMATION FOR SEQ ID NO: 10: SEQUENCE CHARACTERISTICS:
REFERENCE/DOCKET NUMBER: UTSD:514
TELECOMMUNICATION INFORMATION:
TELEPHONE: 512/418-3000
TELEFAX: 512/474-7577
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:
LENGTH: 217 amino acids
TYPE: amino acids
STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       112 ALYLVCG -- ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: P.O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 10, Application US/08785271 Patent No. 6194176 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217 amino acids
                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 70.33
Matches 102, Conservative
                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77210
                                                                                                                                                                                          ;
US-08-784-582-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-785-271-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
HLVE 111
                                                                                                                         2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNFQTSLSFSFSIFT 61
                                                     Caps
Score 461; DB 3; Length 217;
Prod. No. 4.4e-42;
7; Mismatches 20; Indels 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 11, Application US/08759626
Patent No. 6,25446
CENERAL INFORMATION:
CENERAL INFORMATION:
APPLICANT: Altmann, Scott W.
APPLICANT: Razaelein, Robert v.
TITLE OF INVENTION: MUTATIONAL VARIANIS OF MAMMLIAN PROTEINS NUMBER OF SEQUENCES: 11
COMMESSONDENCE ADDRESS:
ADDRESSEE: DNAX RESEARCH INSTITUTE
STREET: 901 California Avenue
                                                                                                                                                                                          62 PSNREETQQKSNLELLK LLIQSWLEPVQLGTGPRFVNQHLCGS·····
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: TROPY disk
COMPUTER: TROPY disk
COMPUTER: TROPY disk
COMPUTER: TROPY COMPALIBLE
OPERATING SYSTEM: PC-DOS/MS-IXUS
SOFTWARE: PATENTIN Release: #i.6, Version #1.30
CURSENT APPLICATION DATA:
APPLICATION NUMBER: US/08/759,628
FILING DATE: 05 DEC-1996
CLASSIFICATION: 4 45
PRIOR APPLICATION: 4 45
```

S

```
TITLE OF INVENTION: Process for preparing recombinant profession highly efficient expression vector from Sacharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 66, Application US/09280030A

Patent No. 6506595

GENERAL INFORMATION:
APPLICANT: Sato, Seiji
APPLICANT: Hqashikuni, Nachiko
APPLICANT: Kondo, Masaaki
ITILE OF INVENTION: DNAS ENCODING NEW FUSION PROTEINS AND PROCESSES FOR ITILE OF INVENTION: PREPARING USFFUL POLYPEPTIDES THROUGH EXPRESSION OF THE FITUE OF INVENTION: DATE: 1999-03-:6
CURRENT FILING DATE: 1999-03-:6
EARLIER FILING DATE: 1999-03-:3
NUMBER OF SEQ ID NOS: 66
CORTAND OF SEQ ID NOS: 66

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62 PSNREETQQKSNLELLKISI: LIGSWLEPVQLGTGPRFVNQHLCGS------------H.VE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111 PSNREETQOKSNLELLRISLLLIQSMLEPVQF LRSVFANSLVYGASDSNVYFALKIJJEE 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 PPTIPLSRLFUNAMLRAHRLHULAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPF 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sal's
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
-
-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             57.8%; Score 461; DB 4; Length 241
70.3%; Pred. No. 5e-42;
Live 7; Mismatches 20; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.5 inch, 1.44 Mb storage
                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
ADDRESSEE: BACHMAN & IAPOINIE, P.C.
STREET: Suite 1201, 900 Chapel Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM
OPERATING SYSTEM: h.n.-ws 95/98
SOFTWARE: MS WORD
CURRENT APPLICATION DATA
APPLICATION NUMBER: US/09/424.6.20B
FILING DATE: 24-no. 6341585-1999
INFORMATION FOR SEO ID NO: 25:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: linear:
MOLECULE TYPE: PROTEIN
SEQUENCE DESCRIPTION: SEQ 10 NO: 25:
US:09-424-6208-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112 ALYLVCG--ERGFFYTPKT: IVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 241 amino cids
TYPE: amino acid
                                                                                                                                  SEONG, Baik-Lin
                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: U.S.A.
ZIP: 06510-2802
COMPUTER READABLE FORM:
MEDIUM TYPE: DISKET:
                                 BAE, Cheon-Soc
YANG, Doo-Suk
                                                               Doo-Suk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT ORGANISM: Artificial Sequence
                                                                                                    Jee-Won
                                                                                                                                                                                                                                                                                                                                                                                           STATE: Connecticut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 70.39
Matches 102; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                            CITY: New Haven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-280-030-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ ID NO 66
LENGTH: 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ê
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Olazaran, Martha Guerrero
APPLICANT: Saldana, Hugo Barrera
APPLICANT: Saldana, Hugo Barrera
APPLICANT: Salvado, Jose Maria Viader
TITLE OF INVENTION: Genetically Modified Methylotrophic P. pastoris Yeast for the
TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone
FILE REFERENCE: 1829.0010000
CURRENT APPLICATION NUMBER: 05/09/284,878
PRIOR FILING DATE: 1999-07-21
PRIOR FILING DATE: 1999-10-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62 PSNREETQOKSNLELLRISLLLIQSWLEPVQLGTGPRFVNOHLCGS------HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27 FPIIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEGKYSFLONPQISLCFSESIPT 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQISLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16:
                                                                                                                                                                                                                                                                                                                                                            16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 57.8%; Score 461; UB 4; Length 217; Best Local Similarity 70.3%; Pred. No. 4.4e-42; Matches 102; Conservative 7; Mismatches 20; Indels
                                                                                                                                                                                                                                                                                             Length 217;
                                                                                                                                                                                                                                                                                                                                                            20; Indels
NAME/KEY: Peptide
LOCATION: 133..153
FEATURE:
NAME/KEY: Peptide
LOCATION: 192..210
O'THER INFORMATION: /note- "The poptides above are
O'THER INFORMATION: depicted in Figure 1"
US-08-759-628-11
                                                                                                                                                                                                                                                                                         57.8%; Score 461; DB 3; 70.3%; Pred. No. 4.4e-42; tive 7; Mismatches 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 25, Application US/09424620B
Patent No. 6391585
GENERAL INFORMATION:
APPLICANT: HANIL SYNTHETIC FIBER CO., LTD.
JANG. KI-Ryong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112 ALYLVCG -- ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146 GIQTLMGRLEDG---SPRTGQIFKQ 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112 ALYLVCG--ERGFFYTPKTRGIVEO 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           : | | | : | | : | | 146 GIQTLMGRLEDG---SPRTGQIFKQ 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1, Application US/09284878 Patent No. 6342375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 9
SOFTWARE: Patentln Ver. 2.1
                                                                                                                                                                                                                                                                                                                 Local Similarity 70.3 nes 102; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 10
US-09-424-620B-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-284-878-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-284-878-1
                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
57.8%;
70.3%;
                           Query Match 57.8°
Best Local Similarity 70.3°
Matches 102; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE: Texas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
STREET: P.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TOPOLOGY:
US-08-784-582-73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY:
                                                                                                                                                                                                                    ŝ
                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                             55 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 114
                                                                                                                                                                                           2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                            Gaps
; OTHER INFORMATION: Description of Artificia Sequence: Designated is ; OTHER INFORMATION: an amino acid sequence of MWPsp-MWPmp20-TEV-G-GH US-09-280-030-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Helban, Philippe A.
APPLICANT: Halban, Philippe A.
APPLICANT: Halban, Philippe A.
APPLICANT: Halban, Philippe A.
APPLICANT: Clark, Samuel A.
APPLICANT: Clark, Samuel B.
APPLICANT: Clark, Samuel B.
APPLICANT: Thigpen, Anice E.
APPLICANT: Wadde, Christian
APPLICANT: McGarry, Dennis
TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM TITLE OF INVENTION: SECRETORY CELL LINES
NUMBER OF SEQUENCES: 79
CORRESPONDENCE ADDRESS:
                                                                                                                                               16;
                                                                                           Query Match 57.8%; Score 461; DB 4; Length 245; Best Local Similarity 70.3%; Pred. No. 5.2e-42; Matches 102; Conservative 7; Mismatches 20; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DGS/MS-DGS
SOFTWARE: Patentin Release #1.6, Version #1.30
CUBRENT APPLICATION DATA:
APPLICATION NUMBER: US/OB/784,582
FILING DATE: CONCURRENTLY Herewith
CLASSIFICATION DATA:
APPLICATION NUMBER: US 60/028 427
FILING DATE: 19-JAN 1996
FILING DATE: 19-JAN 1996
FILING DATE: 19-JAN 1996
FILING DATE: 19-JAN 1996
ATONNEY/AGENT INFORMATION:
NAME: HIGHLANDER: 37,642
REFERENCE/FOCKET NUMBER: UTSD:514
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                112 ALYLVCG -- ERGFFYIPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                           E: Arnold, White & Durkee P.O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 71, Application US/08784582
Patent No. 6110707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO: 71:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 274 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        512/474-7577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CITY: Houston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STATE: Texas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
STREET: P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 12
US-08-784-582-71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-784-582-71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                              õ
```

```
62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS·······HLVE 111
                                                                                                                                                                                                                                 2 FPTIPLSRLFONAMI, RAHRL JLAFOTY QEFEEAY I PKEQKYSFLONPQTSLSFSESIPT 61
                                                                                                                              27 FPTIPLSRLFONAMLRAHRU GLAFOTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Newgard, Christop or B.
APPLICANT: Halban, Philippe A.
APPLICANT: No 610707minq m. Karl D.
APPLICANT: No 610707minq m. Karl D.
APPLICANT: Clark, Samuel A.
APPLICANT: Thigpen, Anice E.
APPLICANT: Thaten, Anice E.
APPLICANT: There, Fred
APPLICANT: Newse, Fred
APPLICANT: McGarry, Dennis
TILE OF INVENTION: RECOMBININT EXPRESSION OF PROTEINS FROM
TITLE OF INVENTION: SECRETORY CELL LINES
NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS:
                                                     16;
57.8%; Score 461; DB 3; Length 274; 70.3%; Pred. No. 6e-42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 360;
                                                   20; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IEM PC compatible
OPERATING SYSTEM: PC-DOS/MS:RXS
OFERATING SYSTEM: PC-DOS/MS:RXS
OFERATING SYSTEM: PC-DOS/MS:RXS
OFFRATION NATA:
APPLICATION NATA:
FILING DATE: CONCURRENTLY HETEWHILE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 461; DB 3;
Pred. No. 8.5e-42;
                                                   7: Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION 1 458
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/028,427
FILING DATE: 15-02T-1996
PRIOR APPLICATION UNBER: US 08/589,028
FILING DATE: 19-JAN-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                            112 ALYLVCG--ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                       E: Arnold, White & Durkee P.O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             UTSD:514
                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-784-582-73
; Sequence 73, Application US/0878 +82
; Patent No. 6110707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Highlander, Steven L.
REGISTATION NUMBER: 37,642
REFERENCE/DOCKET NUMBER: UTSD:
TELECOMMUNICATION INFORMATION:
TELEFAX: 512/418-3000
TELEFAX: 512/418-3000
TELEFAX: 512/414-7577
INFORMATION FOR SEQ ID NO: 73;
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   : 360 amino acids
amino acid
```

g ò a

```
62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLGGS-------HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE-FILLEFILLEFILL STLLIGSMLEPVQF-LRSVFANSLVYGASUSNVYDLLKDLEF 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 FPTIPLSRLFUNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27 PPITPLSRLFUMASLRAHRLHQLAFOTYQEFEEAYIPKEQKYSFLONPQTSLCFSESIPI 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 57.1%; Score 455; DB 1; Length 217; Best Local Similarity 69.7%; Pred. No. 2e-41; Matches 101; Conservative 7; Mismatches 21; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Search completed: September 16, 2003, 12:41:25
Job time : 24.93 sers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112 ALYLVCG - ERGFFYIPKTF 1VEU 134
                                                                                                                                                                                              36,134
3R: 325860-55
                  CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/187,756C
                                                          January 27, 1994
                                                                                                                                                                            NAME: FERRARO, GREGORY D. REGISTRATION NUMBER: 36,134 REFERENCE/DOCKET NUMBER: 32 TELECOMMUNICATION INFORMATION: TELEPHONE: 201-994-1706
WORD PERFECT 5.1
                                                                                                                                                                                                                                                                             TELEFAX: 201-994-1744
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 217 AMING ACIDS
                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE: PROTEIN
                                                                                                                                                                                                                                                                                                                                                            TYPE: AMING ACID
                                                                                                                                                                                                                                                                                                                                                                                                    LINEAR
                                                          FILING DATE: Ja CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS
                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-187-756C-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ć
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      င်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   င်
                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANI: C APPEL, SCOTT
TITLE OF INVENTION: Human Growth Hormone to stimulate hematopoiesis and immune recons
TITLE OF INVENTION: after hematopoietic stem cell transplantation in humans
TITLE OF INVENTION: after hematopoietic stem cell transplantation in humans
FILE REPREMENCE: CHAPPEL-6.1
CURRENT APPLICATION NUMBER: US/09/465,461
CURRENT FILING DATE: 1999-12-17
PRIOR FILING DATE: 1998-12-17
NUMBER OF SEQ ID NOS: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEKAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                          2 FPTIPLSRLFDNAMLRAHRLHQLAFDIYQEFEEAYIPKEGKYSFLQNPQTSLSFSESIPT 61
16: Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21; Indels 16; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               57.1%; Score 455; DB 4; Length 191; 69.7%; Pred. No. 1.7e-41;
  Indels
20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 4. Application US/08187756C
Patent No. 5597709
GENERAL INFORMATION:
APPLICANT: ROSEN, ET AL.
TITLE OF INVENTION: Human Growth Hormone
NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS:
ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN,
ADDRESSEE: CACCHI, STEWART & OLSTEIN
STRET: 6 BECKER FARM ROAD
CITY: ROSELAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7: Mismatches
7; Mismatche
                                                                                                                                                                                                                       112 ALYLVCG - ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120 GIQTLMGRLEDG---SPRTGQIFKQ 141
                                                                                                                                                                                                 112 ALYLVCG - - ERGFFYTPKTRGIVEO 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 INCH DISKETTE
                                                                                                                                                                                                                                                                                                                                   Sequence 1, Application US/09465461
Patent No. 6348444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin version 3.1 SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PS/2
OPERATING SYSTEM: MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 69.7%
Matches 101; Conservative
    Matches 102; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IBM PS/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NEW JERSEY
: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ZIP: 07068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 15
US-08-187-756C-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                  RESULT 14
US-09-465-461-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-465-461-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                   g
                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

OM protein - protein search, using sw model

September 16, 2003, 12:38:55; Search time 47.2763 Seconds (without alignments) 472.415 Million cell updates/sec Run on:

US-09-423-100-7

1 MFPTIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 150 Title: Perfect score: Sequence:

Gapop 10.0 , Gapext 0.5 **BLOSUM62** Scoring table:

Total number of hits satisfying chosen parameters:

556269 seqs, 148893369 residues

Searched:

Minimum DB seq length: 0 Maximum DB seq length: 2000060000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

•• Database

Published_Applications_AA:*

1. Cgn2_6/ptodata/2/pubpaa/U507_pUBCOMB.pep: 2. cgn2_6/ptodata/2/pubpaa/U507_pUBCOMB.pep: 3. cgn2_6/ptodata/2/pubpaa/U506_bw_ubB.pep: 3. cgn2_6/ptodata/2/pubpaa/U506_bW_ubB.pep: 5. cgn2_6/ptodata/2/pubpaa/U507_NEW_pUB.pep: 6. cgn2_6/ptodata/2/pubpaa/DFUGE_BUBCOMB.pep: 7. cgn2_6/ptodata/2/pubpaa/PCTUG_PUBCOMB.pep: 7. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 9. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 10. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 11. cgn2_6/ptodata/2/pubpaa/U509_PUBCOMB.pep: 12. cgn2_6/ptodata/2/pubpaa/U509_PUBCOMB.pep: 13. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 14. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 15. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 16. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 16. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 17. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 18. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 19. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 11. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 12. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 13. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 14. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 15. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 16. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 17. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep: 18. cgn2_6/ptodata/2/pubpaa/U508_PUBCOMB.pep:

Pred. No. is the number of results predicted by charce to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Query Match Length DB	DB	QI	Description
1	797	100.0	150	14	US-10-054-873-7	Sequence 7, Appli
71	555.5	69.7	107	14	US-10-054-873-6	Sequence 6, Appli
m	470	59.0	92	14	US-10-054-873-2	
₹	461	57.8	191	11	US-09-984-010-23	23,
'n	461	57.8	191	12	US-10-153-207-1	``
9	461	57.8	191	12	US-10-400-377-1	'n
7	461	57.8	191	12	US-10-400-708-1	7
89	461	57.8	191	12	US-10-298-148-1	7
đ	461	57.8	214	12	US-10-153-207-6	
10	461		217	σ	US-09-929-918-9	4
11	461		245	σ	US-09-280-030-66	Sequence 65, Appl
12	455		217	6	US-09-853-688-2	
13	455		217	12	US-09-969-748C-4	Sequence 4, Appli
14	454	57.0	217	10	US-09-804-409A-16	Sequence 16. Appl
15	448	56.2	217	σ	US-09-853-688-4	

LENGIH: 150 amino acids TYPE: amino acid

	Sequence 2, Appli Sequence 411, App Sequence 18, Appl Sequence 3, Appli	Sequence 19, Appl Sequence 5, Appli Sequence 8, Appli Sequence 7, Appli		Sequence 5, Appli Sequence 5, Appli Sequence 3, Appli Sequence 4, Appli Sequence 4, Appli		0. 10. 3. 5.
12 US-09-824-200-12 12 US-10-300-822-1 12 US-10-289-845-3 9 US-10-289-887-3 15 US-10-043-487-350	12 US-10-153-207-2 15 US-10-103-313-411 15 US-10-188-246-18 12 US-10-153-207-3	10 US-09-861-687-19 14 US-10-054-873-5 4 US-09-736-611-8 1:S-09-740-359-7	1 US-09-894-711-18 9 US-09-736-611-6 9 US-09-740-359-5	10 US-09-894-711-5 11 US-U9-858-9358-5 14 US-10-028-410-3 9 US-09-280-63-4 10 - 09-947-563-4	9 US 09-746-611-12 9 US 09-740-359-12 10 US:09-994-711-12 9 US:09-736-611-10	9 US-09-740-359-10 10 US-09-894-711-10 14 U 10-066-009A-3 15 G9-947-563-5 9 US-09-205-658-125
191 191 191 217 163	191 229 246 190	138 52 147 147	1244	146 51 51 117 96	124 124 124 125	125 125 50 50 110
55 55.2 54.3 50.1	47.8 46.8 43.3 37.8	37.0 36.9 35.9	35.7 7.75 7.75	28 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	34.6 34.6 34.6	94 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
445 440 433 399	381 373 345 301.5	294.5 294 286 286	284.5 284.5 284.5	284.5 278.5 278.5 278	275.5 275.5 275.5 275.5	275.5 275.5 273 271 270
16 17 18 19 20	22 23 24 24	25 26 27 28	50 60 10 10 10 10 10 10 10 10 10 10 10 10 10	2	3.04 4.04 4.04	4444

ALIGNMENTS

```
Sequence 7, Application US/10054873
Sequence 7, Application US/10054873
Publication No. US/20020164712A1
GENERAL INFORMATION:
APPLICANT: Gan, Zhong Ru
TILLE OF INVENTION: Chimeric Protein Containing an Intramolecular Chaperone-Like Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/054,873
FILING DATE: 22-3an-2002
CLASSIFICATION: <UNKNOWN>
                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
ADDRESSE: Townsend and Crew LLP
STREET: Two Enhancedory Gester, Eighth Floor
CITY: San Fractisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,946
REFERENCE/DOCKET NUMBER: 020167-000130US
INFORMATION FOR SEQ ID NO: 7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/CN98/00052
FILING DATE: 31-MAR-1998
APPLICATION NUMBER: US 09/423,100
FILING DATE: 11-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: USA
ZIP: 94111-3834
US-10-054-873-7
```

ò g ò g

```
61 TPSNREETQQKSNLELLRISLLIJOSWLEPVQLGTGPRFVNQHLCGSHLVEALYLVGER 120
                                                                                                           1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Intramolecular Chaperone-Like Sequence
1 MFPTIPLSRLFUNAMLRAHRLHQLAFUTYQEFEEAYIPKEQKYSFLQNP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 14; Length 92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-FOS/MS-IXIS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: Chimeric Protein Containing an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Crew LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE/DOCKET NUMBER: 020167-000130US INFORMATION FOR SEQ 1D NO: 2: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 59.0%; Score 470; DB 14; Best Local Similarity 100.0%; Pred. No. 1.5e-44; Matches 92; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: W PCT/CN98/00052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 TPSNREETQQKSNLELI : SLLLIQSWLEPVQ 92
                                                                                                                                                                                                            121 GEFYTPKTRGIVEGCCTSICSLYGLENYCN 150 HILLIHIHIHIHIHIHIHIHIH
                                                                                                                                                                                                                                                                                  78 GFFYIPKTRGIVEQCCISICSLYGLENYCN 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39/423,100
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/054.873
FILING DATE: 22-Jan.:002
CLASSIFICATION: <0nk: 40>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOCY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 46,946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-984-010-23

; Sequence 23, Application US/09984010

; Publication No. US20030104578A1

; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 2, Application US/10054873
Publication No. US/20020164712A1
GENERAL INFORMATION:
APPLICANT: Gan, Zhong Ru
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 92 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 31-MAR APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Mycroft, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 11-DEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF
                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-054-873-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-054-873-2
                                                                                                                                                                                                                                                                                                                                                                                          RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 4
                                                                                                                                     g
                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                           d
                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGSHLVEALYLVCGER 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGSHLVEALYLVCGER 120
                                                                                                                                                                                                                                                                                                                                                                                      1 HIFFITH | HIFFITH | HITTH | 
                                                                                                                                                                                                                                                                                                                                              1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKFQKYSFLQNPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MFPTIPLSRLFDNAMLRAHRLHOLAFDTYQEFTEAYIPKEQKYSFLONPQTSLSFSESIP 60
                                                                                                                                                                                                                                                                                  Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                              ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: Chimeric Protein Containing an
Intramolecular Chaperone-Like Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 69.7%; Score 555.5; DB 14; Length 107; Best Local Similarity 71.3%; Pred. No. 5.9e-54; Matches 107; Conservative 0; Mismatches 0; Indels 43;
                                                                                                                                                                                                            Length 150;
                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Mycroft, Frank J
REGISTRATION NUMBER: 46,946
REFERENCE/DOCKET NUMBER: 020167-000130US
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                    100.0%; Score 797; DB 14; 100.0%; Pred. No. 1.4e-80;
                                                                                                                                                                                                                                                                                  .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/CN98/00052
FILING DATE: 31-MAR-1998
APPLICATION NUMBER: US 09/423.100
FILING DATE: 11-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 GFFYTPKTRGIVEQCCTSICSLYQLENYCN 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/054,873
FILING DATE: 22-Jan-2002
CLASSIFICATION: CURROWN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 6:
                             TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 6, Application US/10054873
Publication No. US2002016471241
GENERAL INFORMATION:
APPLICANT: Gan, Zhong Ru
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 107 amino acids
STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: amino acid
                                                                                                                                                                                                                                         Best Local Similarity 100.
Matches 150; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
                                                                                                                                     US-10-054-873-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-054-873-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-054-873-6
                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 2
```

0;

```
161
                                                                                                                                   LENGTH: 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-400-708-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
                                                                                                                                                             TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                          ŝ
                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 | PPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60
                                                                                                              ADDRESSEE: FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP
APPLICANT: Ballance, David James
IITLE OF INVENTION: RECOMBINANT FUSION PROTEINS TO GROWTH HORMONE
AND SERUM ALBUMIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16; Gaps
                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC Compatible
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/984,010
FILING DATE: 21-May-2002
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 09/091,873
FILING DATE: 25-JUN-1998
APPLICATION NUMBER: PCI/CB96/03164
FILING DATE: 19-DEC-1996
INFORMATION FOR SEQ ID NO: 23:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match 57.8%; Score 461; 58 11; Length 191; Best Local Similarity 70.3%; Pred. No. 3.9e-43; Matches 102; Conservative 7; Mismatches 20; Indels 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: James A. Wells
APPLICANT: James A. Wells
APPLICANT: Brian C. Cunningham
TITLE OF INVENTION: GROWTH HORMONE VARIANTS
FILE REFERENCE: 669.12-US-C7
CURRENT APPLICATION NUMBER: US/10/153,207
CURRENT FILING DATE: 2002-05-22
PRIOR PPLICATION NUMBER: 08/479,884
PRIOR PPLICATION NUMBER: 08/190,723
PRIOR FILING DATE: 1995-06-07
PRIOR APPLICATION NUMBER: 07/960,227
PRIOR PPLICATION NUMBER: 07/960,227
PRIOR PLING DATE: 1992-10-13
PRIOR PPLICATION NUMBER: 07/960,227
PRIOR PLING DATE: 1992-10-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE DESCRIPTION: SEQ ID NO: 23:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       112 ALYLVCG - - ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120 GIQTLMGRLEDG --- SPRIGQIFKQ 141
                                                                                                                                   STREET: 1300 I Street, NW CITY: Washington
                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; Sequence 1, Application US/10153207
; Publication No. US20030153003A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGIH: 191 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                          CORRESPONDENCE ADDRESS
                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                      COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-984-010-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 5
US-10-153-207-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
```

```
61 PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLEE 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62 PSNREETQOKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/1040'377
Publication No. US20030162949A1
GENERAL INFORMATION
APPLICANT: COX 111. George N
APPLICANT: COX 111. George N
TITLE OF INVENTION: Derivatives of Growth Hormone and Related Proteins
TITLE OF INVENTION: Derivatives of Growth Hormone and Related Proteins
TITLE OF INVENTION: Derivatives of Growth Hormone and Related Proteins
CURRENT APPLICATION NUMBER: US/10/4462,941
PRIOR FILING DATE: 2000-01-14
PRIOR FILING DATE: 1997-07-14
NUMBER: E0/005:41
                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTIPLSRLFCNAMLRABRIHGLAFDTYQFFEEAYIPKEQKYSF1 JNPQISLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 FPTIPLSRLFDNAMLRAHRLHOLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 FPT1PLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLONPQTSLCFSES1PT 60
                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 57.8%; Score 461; DB 12; Length 191; Best Local Similarity 70.3%; Fred. No. 3.9e-43; Matches 102; Conservative 7; Mismatches 20; Indels 16:
                                                                                                                                                                                                                                                                                                                                                   16:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 PSNREETQQKSNLELLRI: LLIQSWLEPVQLGTGPRFVNQHLCGS----
                                                                                                                                                                                                                                                                                              Length 191;
                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                              Score 461; DB 12;
Pred. No. 3.9e 43;
7; Mismatches 20;
                                                                                                               ersion 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               112 ALYLVCG--ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120 GIQILMGRLEDG---SP: FOIFKU 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              112 ALYLVCG -- ERGFFYTPKTRGIVEQ 134
PRIOR FILING DATE: 1989-10-26
PRIOR APPLICATION NUMBER: 07/264,611
PRIOR FILING DATE: 1988-10-28
NUMBER OF SEQ ID NOS: 20
SOFTWARE: FASLSEV for Windows : rsion
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Application US/10400708 Publication No. US20030166865A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 70.3%:
Matches 102: Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; ORGANISM: Homo sapiens
US-10-400-377-1
                                                                                                                                                                                                                     : ORGANISM: Homo Sapiens
US-10-153-207-1
```

```
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 PSNREETQQKSNLELLRISLLIIJSWLEPVQF-LHSVFANSLVYGASDSNVYD;LKDLEE 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1. Application US/10298148

Sequence 1. Application US/10298148

Fublication No. US203017128441

GENERAL INFORMATION:
APPLICANT: Cox III, George N

APPLICANT: EXAMPLE OF INVENTION: Derivatives of Growth Hormone and Kelated Privatives
IIILE REFERENCE: 4152-1-1918

FURRENT APPLICATION NUMBER: US/10/298,148

CURRENT FILING DATE: 2002-11-15

PRIOR FILING DATE: 2000-01-14

PRIOR FILING DATE: 1997-07-14

PRIOR FILING DATE: 1997-07-14

SOFTWARE: PATENTIN NUMBER: 60/052,516

NUMBER OF SEQ ID NOS: 41

SOFTWARE: PATENTIN VET. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          57.8%; Score 461; DB 12; Length 191;
70.3%; Pred. No. 3.9e-43;
tive 7; Mismatches 20; Indels 16; Gaps
APPLICANT: Cox III, George N
APPLICANT: Bolder Biotechnology, Inc.
ITILE OF INVENTION: Derivatives of Growth Hormone and Related Proteins
FILE REFERENCE: 4152-1-FUS
CURRENT APPLICATION NUMBER: US/10/400,708
CURRENT FILING DATE: 2003-03-26
PRIOR APPLICATION NUMBER: US/9/462,941
PRIOR APPLICATION NUMBER: 60/052,516
PRIOR FILING DATE: 1997-07-14
NUMBER OF SEQ ID NOS: 41
                                                                                                                                                                                                                                                                                                                                                                                              Query Match 57.8%; Score 461; DB 12; Length 191; Best Local Similarity 70.3%; Pred. No. 3.9e-43; Matches 102; Conservative 7; Mismatches 20; Indels 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      112 ALYLVCG -- ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             112 ALYLVCG- - ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 57.89
Best Local Similarity 70.39
Matches 102; Conservative
                                                                                                                                                                                                                                                                                                            TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10 298-148-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-298-148-1
                                                                                                                                                                                                                                                                                                                                                         US-10-400-708-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
APPLICANT: Mordyum, vitaliy A.
APPLICANT: Chernykh, Svitlana I.
APPLICANT: Chernykh, Svitlana I.
APPLICANT: Slavchenko, Iryna Yu.
APPLICANT: Vozianov, Oleksandr
ITLE OF INVENTION: PHAGE-DEPENDENT SUPER PRODUCTION OF
ITLE OF INVENTION: PHAGE-DEPENDENT SUPER PRODUCTION OF
ITLE FEFENCE: PHAGE-006A
CURRENT PRILIG DATE: 2001-08-15
PRIOR FILING DATE: 2001-08-15
PRIOR FILING DATE: 1999-05-25
NUMBER OF SEQ ID NOS: 11
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57.8%; Score 461; DB 12; Length 214; 70.3%; Pred. No. 4.5e-43; tive 7; Mismatches 20; Indels 19
NESOLI 9

SEQUENCE 6, APPLICATION US/10153207

SEQUENCE 6, APPLICATION US/2003015300341

GENERAL INFORMATION:
APPLICANT: James A. Wells
APPLICANT: Brian C. CUNINGHAM
ITLE OF INVENTION: GROWTH HORMONE VARIANTS
FILE REFERENCE: 659.12 -US-C7
CURRENT APPLICATION NUMBER: 08/10/153,207
CURRENT FILING DATE: 2002-05-22
PRIOR FILING DATE: 1995-06.07
PRIOR FILING DATE: 1995-06.07
PRIOR FILING DATE: 1995-06.07
PRIOR APPLICATION NUMBER: 08/190,723
PRIOR FILING DATE: 1995-06.07
PRIOR APPLICATION NUMBER: 07/400,227
PRIOR FILING DATE: 1992-04.27
PRIOR APPLICATION NUMBER: 07/426,066
PRIOR FILING DATE: 1992-04.27
PRIOR PLILING DATE: 1992-04.27
PRIOR APPLICATION NUMBER: 07/264.611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 20
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                112 ALYLVIG - ERGEFYTEK EGIVEC 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SPRIGULEKO 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 9, Application US/09929918
Patent No. US20020090678A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 70.3
Matches 102; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                143 GIQILMGRLEDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
ORGANISM: Homo Sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    : SEQ ID NO 9
: LENGTH: 217
: TYPE: PRT
: ORGANISM: Homo sapiens
US-09-929-918-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-929-918-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-153-207-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
```

ហ

```
112 ALYLVCG--ERGFFYTPKTR:1VEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      146 GIQTLMGRLEDG---SPRTGQIFKQ 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: ARIZEKE PHARMACEUTICALS, INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 4, Application US/099697480 Publication No. US20030161809A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                          57.18;
69.78;
                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 69.74
Matches 101; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 57.1%
Best Local Similarity 69.7%
Matches 101; Conservative
                                                                                                                                                                 TYPE: PRT
CORGANISM: Homo sapiens
US-09-853-688-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Homo sapiens
                                                                                                                                          217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 13
US-09-969-748C-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-969-748C-4
                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Kudo, Toshiyuki
APPLICANT: Kudo, Toshiyuki
APPLICANT: Kudo, Toshiyuki
APPLICANT: Kondo, Masaaki
TITLE OF INVENTION: DNAS ENCODING NEW FUSION PROTEINS AND PROCESSES FOR
TITLE OF INVENTION: DNAS
TITLE OF INVENTION: DNAS
FILE REPRENCE: 382.1026
CURRENT PILING DATE: 1999-03-26
CURRENT FILING DATE: 1999-03-36
EARLIER APPLICATION NUMBER: US/09/280,030A
SOFFWARE: PALING DATE: 1998-03-31
NUMBER OF SEQ 1D NOS: 66
SOFFWARE: PALENT OF SEQ 1D NOS: 66
SEQ 1D NO 66
                                                    4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 PSNREETQOKSNLELLRISILLIQSWLEPVÇLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                                                                                                                                    87 PSNREETQQKSNLELLRISLILLQSWLEPVQF-LRSVFANSLVYGASDSNVYDLJKDLFE 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                       27 FPIIPLSRLEDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPI 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 FPTIPLSRLEDNAMLRAHRLHQLAFDTYQEFERAYIPKEQKYSFLUNPQTSLSFSESIPT 61
                                                                                                2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 57.8%; Score 461; DB 9; Length 245;
Best Local Similarity 70.3%; Pred. No. 5.4e-43;
Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps
                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: COOPER, DAVID N.
APPLICANT: FROCTER, ANNIE M.
APPLICANT: GREGORY, JOHN
APPLICANT: MILLAR, DAVID S.
TITLE OF INVENTION: METHOD FOR DETECTING GROWTH HORMONE VARIATIONS IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: Description of Artificial Sequence: Designated is OTHER INFORMATION: an amino acid Sequence of MWPSp-MWPmp20-TEV-G-GH
Query Match 57.8%; Score 461; DB 9; Length 217; Best Local Similarity 70.3%; Pred. No. 4.6e-43; Matches 102; Conservative 7; Mismatches 20; Indels 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  112 ALYLVCG--ERGFFYTPKIRGIVED 134
                                                                                                                                                                                                                                                                                     112 ALYLVCG - - ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-280-030-66
. Sequence 66, Application US/09280030A
. Patent No. US20010021515A1
. GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; Sequence 2, Application US/09853688
; Patent No. US20020081605A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Sato, Seiji
APPLICANT: Higashikuni, Naohiko
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-280-030-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-853-688-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QQ
                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                       ò
```

```
APPLICANT: MALGARE INTRODUCTION.
APPLICANT: HUUSTON, LOW. L.
APPLICANT: HHULEY, SLEPPING
APPLICANT: HARLEY, SLEPPING
APPLICANT: HARLEY, SLEPPING
APPLICANT: HARLEY, SLEPPING
APPLICANT: CHAPIN, Jacquelinc, M.
APPLICANT: CHAPIN, Jacquelinc, M.
APPLICANT: CHAPIN, Steven
APPLICANT: CHAPIN, Steven
APPLICANT: CHAPIN, Steven
TITLE OF INVENTION: AGENTS ACROSS CELLULAR BARRIERS
CURRENT APPLICATION NUMBER: US 50/2+1/301
PRIOR APPLICATION NUMBER: US 50/2+1/301
PRIOR APPLICATION NUMBER: US 60/248,478
PRIOR FILING DATE: 2000-11-13
PRIOR APPLICATION NUMBER: US 60/248,478
PRIOR PRIOR PILING DATE: 2000-11-13
PRIOR APPLICATION NUMBER: US 60/248,478
PRIOR APPLICATION NUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 FPT/PLSRLFDNAMLRAHRLHQLAFDTYQEFEEAY/PKEQKYSFLQNPQ1SLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels 15; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lengti, 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
TITLE OF INVENTION: HUMANS, THE VARIATIONS AND THEIR USES FILE REFERENCE: WORN'B CURRENT APPLICATION NUMBER: US/U9/853,688
CURRENT FILING DATE: 2001-05-14
UNDHER OF SEQ ID NOS: 66
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57.1%; Score 455; DB 12; I
69.7%; Pred. No. 2.1e-42;
tive 7; Mismatches 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 455; DB 9;
Pred, No. 2.le-42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7; Mismatches
```

```
q
                                                            ò
                                                                                                     3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27 FPIIPLSRLFDNASLRAHRLHQLAFDTYQEFGEAYIPKEQKYSFLQNPQTSLCFSESIPT 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 448; DB 9; Length 217;
Pred. No. 1.3e-41;
7: Mismatches 22; Indels 16; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INCORRATION:
APPLICANT: COOPER. DAVID N.
APPLICANT: COOPER. DAVID N.
APPLICANT: GREGORY. ANNIE M.
APPLICANT: GREGORY. JOHN S.
IITLE OF INVENTION: METHOD FOR DETECTING GROWTH HORMONE VARIATIONS IN TITLE OF INVENTION: HUMANS, THE VARIATIONS AND THEIR USES FILE REFERENCE: WCMPS. HUMANS, THE VARIATIONS AND THEIR USES CURRENT APPLICATION NUMBER: US/09/853,688
CURRENT FILING DATE: 2001-05-14
NUMBER OF SEQ ID NOS: 66
SOFTWARE: PALENTIN VET: 2.1
SEQ ID NO 4
                                                                                                                                                                                    GENERAL INFORMATION:
APPLICANT: KIEFFER, TIMOTHY J.
APPLICANT: CHEUNC, ANTHONY T.
APPLICANT: CHENTION: CAPRESSION IN GUT
TITLE OF INVENTION: EXPRESSION IN GUT
FILLE REFERENCE: 029996/027 # 9721
CURRENT APPLICATION NUMBER: US/09/804.409A
SOURRENT FILING DATE: 2001-03-12
NUMBER OF SEQ ID NOS: 18
SOFTWARE: PETENTIN VEF. 2.1
SEQ ID NO 16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         57.0%; Score 454; DB 10; Length 217; 69.7%; Pred. No. 2.8e-42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               : | | | : | | :|
146 GIQTLMGRLEDG---SPRIGQIFKQ 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112 ALYLVCG -- ERGFFYTPKTRGIVEQ 134
                       : : | | | : | | : | | 146 GIQTLMGRLEDG---SPRTGQIFKQ 167
112 ALYLVCG -- ERGFFYTPKTRGIVEQ 134
                                                                                                       RESULT 14
US-09-804-409A-16
Sequence 16, Application US/09804409A
Patent No. US20020155100A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 4, Application US/09853588 Patent No. US20020081605A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56.2%;
69.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 69.09
Matches 100; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bust Local Similarity 69.7
Matches 101; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-804-409A-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 15
US-09-853-688-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-853-688-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         đ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
```

```
112 ALYLVCG -- ERGFFYTPKTRGIVEQ 134
                                                                     146 GIQTLMGRLEDG- SPRIGUIFKO 167
```

Search completed: September 16, 2003, 12:52:26 Job time: 47.2763 secs

```
GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

OM protein - protein search, using sw model

September 16, 2003, 12:36:15; Search time 17.5097 Seconds (without alignments) 823.845 Million cell updates/sec Run on:

US-09-423-100-7 797

Seguence:

1 MFPTIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 150 Title: Perfect score:

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

283308 segs, 96168682 residues Searched: Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 160% Listing first 45 summaries

Database:

PIR_76:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Description		۰,	somatotropin - rhe	somatotropin 2 pre	~	na t	somatotropin - rhe	пat	chorionic somatoma	ChOriomammot.ropin	choriomammot.ropin	choriomammotropin	somatotropin - qol	•	•	pr		somatotropin precu	somatotropin - Afr	_	somatotropin precu	somatotropin precu		somatotropin - alp	somatotropin - Arc	0		_	_	ċ
	1D	00000	0010	16/410	STHUV	STHUV2	167409	167411	167408	153267	LCHUC	E32435	A26449	B49159	PN0140	STHO	STMS	STRT	S4 9483	JK0219	STPG	146145	JC4632	A37782	A61584	JS0429	STBO	STSH	SIGT	S32682	JC1514
	DB	; -	٦:	~	-	~	~	7	7	~	7	7	~	7	C)	7	٦	٦	~	7	-	7	7	7	7	7	Н	-4	-	7	2
	Length	217	7 7	717	217	256	217	217	212	217	217	217	215	216	190	190	216	216	216	190	216	216	216	216	190	190	217	217	217	217	216
æ	Query		0 1	27.7	53.5	53.5	51.1	50.8	49.7	49.7	47.8	47.8	45.1	39.0	38.6	38.5	38.2	38.0	38.0	37.8	37.8	37.8	37.8	37.6	37.3	37.1	36.3	36.3	36.3	36.3	34.9
	Score	161	70.	400	426.5	426.5	407.5	405	396	396	381	381	359.5	310.5	307.5	306.5	304.5	302.5	302.5	301.5	301.5	301.5	301.5	299.5	297.5	295.5	289.5		289.5	289.5	278.5
	Result No.		٠,	7	e	₹	S	9	7	ω	σ	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	52	56	27	28	59

insulin precursor	insulin precursor	somatotropin precu	epidermal growth f	insulin · sperm wh	insulin - finback	insulin - elephant	insulin precursor	insulin precursor	insulin - hamster	insulin precursor	insulin - Egyptian	somatotropin . gre	insulin precursor	insulin precursor	insulin precursor
INRB	B42179	A60509	PC7082	H. A.H.P.	TEMHE	INEL	300178	A42179	INHY	IPHU	INMSSP	A60625	A59151	IPBO	148166
-	7	~	~	-	,	~	~	~	-	_	-	~	7		7
110	110	216	96	51	51	51	110	110	51	110	51	191	51	105	110
34.8	34.8	34.6	34.5	34.3	34.3	34.3	34.3	34.1	34.1	33.9	33.7	33.7	33.6	33.4	33.3
• •	277.5 34.8			•		,			,		, ,	•	(-)		

AL. I GNMENTS

RESULT 1	
STHU	
somatotropin 1 precursor [validated] · human	ted] · human
N; Alternate names: g	N; Alternate names: growth hormone 1; hGH-N; pituitary somatotropin
N;Contains: growth h	N; Contains: growth hormone 5K peptide; somatotropin 1, long form; somatotropin 1, she
C; Species: Homo sapiens (man)	
C; Date: 24-Apr-1984	C;Date: 24-Apr-1984 *sequence_revision 10-Feb-1995 *text_change 08:Dec-2000
C; Accession: A93731;	C.Accession: A93731; A32435; A93694; A94247; A90051; A93397; A93778; A91764; A90217;
R; DeNoto, F.M.; Moore, D.D.; Goodman, H.M.	dman, H.M.
Nucleic Acids Res. 9, 3719-3730, 1981	1981
A; Title: Human growt	A; Title: Human growth hormone DNA sequence and mRNA structure: possible alternative s
A: Reference number:	A; Reference number: A93731; MUID:82014939; PMID:6269091
A; Accession: A93731	
A; Molecule type: DNA	
A; Residues: 1-217 <den></den>	
A;Cross:references: GB:V0C520	
A; Note: the 20K short form somat:	pin lacks residues 58-72 (32-45 in the active hor
R;Chen, E.Y.; Liao,	
Genomics 4, 479-497, 1989	
A, Title: The human growth hormon,	
A; Reference number:	ند
A; Accession: A32435	
A; Molecule type: DNA	
A; Residues: 1-217 <che></che>	
A.Cross-raforance.	A. Ordes - reference: (20, 10, 10, 11) - Million, 84149 - (01, 01, 01, 01, 01, 01, 01, 01, 01, 01,

Ayross-references: GB:J09071; NID:GIR1143; PIDN:AAA52549.1; PID:GIR1149; RYROSKAL, W.; RONGCON, E. W.; RONGCON, E. W.; RONGCON, E. W.; A.; J05-326, 379.

Ayrillo: Molecular cloning and cleatide sequence of the human growth hormone struct A; Reference number: A93694; Mull:B0034477; PMID:386281

A; Reference number: A93694

A; Molecule type: MRNA
A; Residues: 1-217 < ROS5
A; Cross-references: GB:V00519
A; Note: 35-Pro was also found
R; Martial, J. A.; Hallewell, R. A.; Reference number: A90051; MUID:72143935; PMID:5144027
A; Reference number: A90051
A; Mallewell, R. A.; Hallewell, R. A.; Molecule, R. A.; Molecule,

ţ

```
N'Alternate names: growth hormone
C'Species: Macaca mulatta (rhesus macaque)
C'Species: Macaca mulatta (rhesus macaque)
C'Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 16-Jul-1999
C'Accession: 16/410; A05094
R'Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Bridocrinology 133, 1744-1752, 199:
A'Title: Cloning of four growth hormone/chorionic somatomammotropin:related complemen
A'Reference number: 153267; MUID:94308724; PMID:8404617
is transcribed only in somatotrophic cells of is the 22K long form.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
                                                                                                                                                            A; Map position: 17923.1-17923.3.
A; Introns: 4/1; 57/3; 97/3; 152/3
A; Introns: 4/1; 57/3; 97/3; 152/3
A; Introns: 4/1; 57/3; 97/3; 152/3
C; Superfamily: prolaction
C; Superfamily: prolaction
C; Superfamily: prolaction
C; Superfamily: prolaction
E; 1-26/Domain: signal sequence #s; 1 us predicted <SIG>
E; 27-217/Product: somatotropin i, 'gg form #status experimental <SRP>
E; 27-69/Product: growth hormone 5K eptide #status experimental <5KP>
E; 27-57, 73-217/Product: somatotrop: | i, short form #status experimental <SOS>
E; 79-191, 208-215/Disulfide bonds: 'atus experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 FPTIPLSRLFDNAMLRAHKLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQISLSFSFEPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 FPTIPLSRLFDNAMLRAHRLIQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  man and monkey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A:Accession: 167410
A:Accession: 167410
A:Status: translated from GB/EMBL, :BJ
A:Status: translated from GB/EMBL, :BJ
A:Actoss: references: GB/L165-GB, NL: 1243114; VI;N:AAA18842.;; P16:u234115
B:Li, C.H.: Chung, D.: Lahm, H.W.; Stell; S
Arch. Biochem. Biophys. 245, 287-291, 1986
A:Title: The primary structure of monkey pituitary growth hormone.
A:Reference number: A05094; MUID:86129460; PMID:3080959
A:Accession: A05094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
.
!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A:Molecule type: protein
A:Residues: 27-99, 'Q',101-178, 'D',180-217 <LIC>
A:Note: the monkey species is not identified in the reference
R:Raben, M.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Title: Preparation of growth hormone from pituitaries of A; Reference number: A44774
A; Contents: annotation; identification of source organism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ore 461; DB 1; d. No. 7.5e-38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       57.7%; Score 460; DB 2; 98.9%; ed. No. 9.4e-38; tive C Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62 PSNREETQOKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                         A,Gene: GDB:GH1
A;Cross-references: GDB:119982; GMIM:139250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 112 ALYLVCG -- ERGFFYTPKTRGIVEG 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       146 GIQTLMGRLEDG --- SPRIGUIFKQ 167
          C.Comment: The gene for this horm
C.Comment: About 90% of somatotrop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57.8%; 70.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 57.8%
Best Local Similarity 70.3%
Matches 102; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 98.99
Matches 90; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             somatotropin - rhesus macaque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Science 125, 883-884, 1957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C:Superfamily: prolactin
                                                                          C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ठं
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                    Anteression: Adjace.
Resiston: Adjace.
Resiston:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Accession: 184549
A; Status: preliminary; translated from GB/EMBL/DDBJ
A; Status: preliminary; translated from GB/EMBL/DDBJ
A; Molecule type: mRMA
A; Mesidues: 1.26 cRES>
A; Cross-references: GB:M14398; NID:g183158; PIDN:AAA52554.1; PID:g183159
             A;Residues: 27-94;96-217 <LIC>
R;Naall, H.D.
Nature New Biol. 230, 90-91, 1971
Afitle: Revised primary structure for human growth hormone. A;Reference number: A93397; MUID:71139765; PMID:5279046
A;Accession: A93397
          Residues: 27-94;96-217 <LIC>
```

m

```
Ricocke, N.E.; Ray, J.; Emery, J.G.; Liebhaber, S.A.
J. Biol. Chem. 263, 9001-9006, 1988
Affille: Two distinct species of human growth hormone-variant mRNA in the human place A: Reference number: A92725; MUID:88243769; PMID:3379057
A; Accession: A28072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C:Accession: 167409
R:Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complemen A:Reference number: 153267; MUID:94008724; PMID:8404617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
                                                                                                                                                                                                                                                         somatotropin 2 precursor, splice form 2 - human
N.Alternale names: growth hormone variant-2: placental somatotropin form 2
C.Species: Homo sapiens (man)
C.Species: 30-Sep-1989 *sequence_revision 10-Feb-1995 *text_change 02-Sep-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 FPTIPLSRLFDNAMLRAHRLHQLAFCTYQEFEEAYIPKEOKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27 FPTIPLSRLFDNAMLRARRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A:Status: preliminary; translated from GB/EMBL/DDBJ
A:Molecule type: mRNA
A:Residues: 1-217 cRES-
A:Crossreferences: GB:L16554; NID:q293112; PIDN:AAA18841.1; PID:g293113
C:Superfamily: prolactin
                                          87 PSNRVKITOOKSNLELLRISLLLIOSWLEPVOLLRSVFANSLVYGASDSNVYRHI 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63 SNREETQOKSNLELLRISLILIQSWLEPVQLGTGPRFVNQHLCGSHLVEALYLV 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---GIGPRFVNQHL 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F;1-26/Domain: signal sequence *status predicted <SIG>
F;27-256/Product: somatotropin 2 splice form 2 *status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 256;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Molecule type: mRNA
A;Residues: 1.256 <COO>
Note: an alternative splice junction for intron 4 is used
C;Genetics:
A;Gene: GDB:GH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 53.5%; Score 426.5; DB 1; Best Local Similarity 78.1%; Pred. No. 2.2e-34; Matches 89; Conservative 4; Mismatches 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51.1%; Score 407.5; DB 2; 71.9%; Pred. No. 1.4e-32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A:Map position: 17q22-17q24
A:Introns: 4/1; 57/3; 97/3; 152/3
C:Superfamily: prolactin
C:Keywords: alternative splicing; hormone; placenta F:1-26/Domain: signal seminors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match 51.1%; Score vov.J.,
Best Local Similarity 71.9%; Pred. No. 1.4e
Matches 82; Conservative 12; Mismatches
   62 PSNREFTQQKSNLELLRISL1.LIQSWLEPVQL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              choractic sometomarmotropin's rithesus macaque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CiSpecies: Macaca mulatta (thesus macaque)
                                                                                                                                                                                                                                                                                                                                                                                                                C; Accession: A28072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ેં
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                   Simulation of precursor - human

Nilternate names; growth hormone variant; hGH-V; placental somatotrop

Nicontains: somatotropin 2, long splice form; somatotropin 2, short splice form

C;Species: Homo sapiens (man)

A;Homo sapiens (man)

A;Hom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Status: preliminary: translated from GB/EMB: DDBJ
A;Molecule type: mRNA
A;Readues: 1-217 <100
A;Readues: 1-217 <100
A;Cross-references: GB:M18451; N10:g183179; PIDN:AA35891.1; PID:q183180
A;Cross-references: GB:M8451; N10:g183179; PIDN:AA35891.1; PID:q183180
B;Frankenne, F.; Scippo, M.L.; Van Beeumen, J.: Igout, A.; Hennen, G.
J. Clin. Endocrinol. Metab. 71, 15-18, 1990
A;Title: Identification of piacental human growth hormone as the arowth hormone-V gene A;Reference number: A60711; MUID:90317018; PMID:2196278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A Map position: 17422-17424
A; Introns: 4/1; 57/3; 97/3: 152/3
C; Superfamily: prolactin
C; Keywords: alternative splicing; glycoprotein; hormone; placenta
C; Keywords: alternative splicing; glycoprotein; hormone; placenta
F; 1-26/Domain: signal sequence #status predicted <SIG>
F; 17-21/Product: somatotropin 2, long splice form #status predicted <SOS>
F; 27-57, 73-21/Product: somatotropin 2, short splice form #status predicted <SOS>
F; 91-191, 208-215/Disulfide bonds: #status predicted
F; 166/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10; Indels 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1; Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Molecule type: protein
A;Residues: 27-44;46-57 <FRA>
A;Experimental source: tissue placenta
A;Note: partial glycosylation was demonstrated by lectin binding C;Comment: This gene is expressed by the placenta.
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       53.5%; Score 426.5; DB 1 78.1%; Pred. No. 1.8e-34; iive 4; Mismatches 10
   PSNREETQQKSNLELLRISLLLIQSWLEPVO 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Cross-references: GDB:119983; OMIM:139240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
les 89; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A:Accession: I52104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Gene: GDB:GH2
```

q

```
Choriomammotropin A precursor [validated] - human
NiAlternate names: chorionic somatomammotropin 1; placental lactuages
Cispecies: Homo saplens (man)
Cispecies: A94422; I52342; A9383; A93192; A90044; A94427; A61283; I55229;
Richen, E.Y. Liao, P.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gellnas, R.E.; Seeburg, Genomics 4, 479-497, 1989
A; Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A; Reference number: A32435, MUID:89307277; PMID:2744760
A; Residues: 1-217 ccHE
A; Residues: 1-217 ccHE
A; Residues: DeNoto, F; Fiddes, J.C.; Hallewell, R.A.; Page, G.S.; Smith, S.; Tindes, Mobilization and Reassembly of Genetic Information, Scott, W.A., Weiner, R., Josep
A; Reference number: A94422
A; Mobilization and Reassembly of Genetic Information, Scott, W.A., Weiner, R., Josep
A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related complemen A;Reference number: 153267; MUID:94008724; PMID:8404617 A;Accession: 153267 MUID:94008724; PMID:8404617 A;Accession: 153267 A;Accession: 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A. Residues: 1-3 cTAN>
A. Residues: 1-3 cTAN>
A. Cross references: Gas as a famous as a famous as a famous as references: Gas as a famous a famo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A:Molecule type: mRNA
A:Residues: 1-217 <GOOD
B:Granaka, M.: Masuda, N.: Watahiki, M.: Yamakawa, M.: Shimizu, K.: Naqai, J.: Nakashi
Biochem. Int. 16, 287-292, 1988
A:Title: CNA cloning of huna: clositoric somatomanmotropin-1 pRNA whose transcription
A:Reference number: 152342; MillD:BRZ;0956; PMID:ZR3599
A:Accession: 152342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A:Title: Construction and analysis of recombinant DNA for human chorionic somatomammo
A;Reference number: A93192; MUID:78071761; PMID:593368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPUTSLSFSESIPTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28 PSVPLSRLFDHAMIQAHRLHULAFUTINDEFEEAYIPKEKKHSLMENPQASFCFADSIPTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A: Molecule type: DNA
A: Residues: 50-217 <SHI>
A: Residues: 50-217 <SHI>
A: Experimental source: placenta
B: Li, C. H. Dixon, J.S.: Chung, D.
Arch. Biochem. Biophys. 155, 95-110, 1973
A: Title: Amino acid sequence of human chorionic somatomanmotropin.
A: Reference number: A90054; MUID:73201971; PMID:4712450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               49.7%; Score 396; DB 2; Length 217; 82.2%; Pred. No. 1.8e-31; tive 11; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63 SNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A:Status: translated from SH/EMEL/SDESJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 82.2
Matches 74; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Accession: A93192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Accession: A90054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                             C. Accession: 156411
R. Golos, T. G.; Durning, M.; Fisher, J. M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A; Title: Cloning of four growth hormone/chorionic somatomamotropin related complementar A; Reference number: 153267; WUID: 94008724; PMID: 8404617
A; Accession: 167411
A; Accession: 167411
A; Accession: 167411
A; Molecule type: mRNA
A; Residues: preliminary: translated from GB/EMBL/DDBJ
A; Residues: 1-217 < RES
A; Cross-references: GB-L16555; NID: 9293116; PILN: AAA20180.1; PID: 9293117
C; Superfamily: prolactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cispecies: Macaca mulatta (rhesus macaque (fragment)
Cispecies: Macaca mulatta (rhesus macaque)
Cispecies: Macaca mulatta (risper, J.M.; Fowler, P.D.
Ciscolog, 13. 174.2752, 1993
A.Title: Cloning of four growth hormone/chorionic somatomatmotropin-related complementat
A.Reference number: 153267; MJID:94008724; PMID:84046;7
A.Accession: 167408
A.Status: preliminary: translated from GB/EMBL/DDBJ
A.Molecule type: mRNA
A.Residues: 1-212 ckES>
A.Residues: 1-212 ckES>
A.Cross-references: GB-L16553; NID:9293110; PIDN:AAA18840.1; PID:929*(1):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGSHLVEA-----LY 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           chorionic somatomammotropin-1 - rhesus macaque
C;Species: Macaca mulatta (rhesus macaque)
C;Date: 31-May-1996 *sequence_revision 31-May-1996 *text_change 16-Jul-1999
C;Accession: 153267
R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
                                                                                                                                                                                              N;Alternate names: growth hormone
C;Species: Macaca mulatta (rhesus macaque)
C;Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 16.Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18: Indels 14:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery Match 50.8%; Score 405; DB 2; Length 217; Best Local Sin larity 67.7%; Pred. No. 2.4e-32; Matches 86; Conservative 9; Mismatches 18; Indels 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       r Match 49.7%; Score 396; DB 2; Length 212; Local Similarity 82.2%; Pred. No. 1.8e-31; les 74; Conservative 11; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63 SNREETQOKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      140 LKKLEEG 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   115 LVCGERG 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 7
```

g õ g

ò a ô a õ qq -

```
choriomammotropin precursor (allele hCS-3) - human cispecies: Homo sapiens (man) C; Species: 30-Jun-1988 *text_change 28-Jul-1995 C; Accession: A26449 R; Hitt, H.: Kimelman, J.: Birnbaum, M.J.; Chen, E.Y.; Seeburg, P.H.; Eberhardt, P.L., ONA 6, 59-70, 1987 A; Title: The human growth hormone gene locus: structure, evolution, and allelic variate AReference number: A26449; MUID:87161235; PMID:3030680
                                                                                                                                                                                                                                                                                                                      C.Accession: 32435
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg,
Genomics 4, 479-497, 1989
A.Title: The human growth hormone locus; nucleotide sequence, biology, and evolution
A:Reference number: A32435; MUID:89307277; PMID:2744760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 TIPLSRLFUNAMIRAHRLHULAFDIYQEFEEAYIPKEQKYSFLQNPGTSLSFSESIPTPS 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSFSIPTPS 63
                                                                                                                                                                                                                                 N:Alternate names: chorionic somatomammotropin 2
C:Species: Homo sapiens (man)
C:Date: 29-Dec-1989 #sequence_revision 29-Dec-1989 #text_charge 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEETYIPKDQKYSFLHDSQTSFCFSDS:PTPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEETYIPKDQKYSFLHDSQTSFCFSDSIPTPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A:Molecule type: DNA
A;Residues: 1-215 <HIR>
C:Superfamily: prolactin
F;1-26/Domain: signal sequence #status predicted <SIG>
F;27-215/Product: choriomammotropin, hCS-3 allele #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:J03071; NID:9183148; PIDN:AAA52553.1; PID:9183153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 381; DB 2;
Pred. No. 5.4e-30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 359.5; DB
Pred. No. 7e-28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LIESWLEPVR 117
                            LLIQSWLEPVU 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NREETQOKSNLELLRISLLLIQSWLEP 90
NREETQQKSNLELLRISLLI:1QSWLEPVQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross·references; GDB:119813; OMIM:118820
A;Map position: 17q22-17q24
C;Superfamily; prolactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         choriomammotropin B precursor - human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٠.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            47.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 80.5%;
Matches 70; Conservative 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NMEHTOOKSNLELLRI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64 NREETQQKSNLELLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 82.03
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 somatotropin - golden hamster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-217 <CHE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A:Accession: E32435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Gene: GDB:CSH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89
64
                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C; Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 12
                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A.Molecule type: protein
A.Residues: 27-46 <NIC>
A.Note: choriomammotropin apparently copurified with placental catechol-O-methyltransfer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R.Schneider, A.B.: Kowalski, K.; Russell, J.; Sherwood, L.M.
J. Biol. Chem. 254, 3782-3787, 1979
A.Title: Identification of the interchain disulfide bonds of dimeric human placental lad A.Faference number: A925151; MUID:79173081: PMID:438159
A.Contents: annotation; dimeric disulfide bonds
R.Selby, M.J.; Barta, A.; Baxter, J.D.; Bell, G.L.; Eberhardt, N.L.
J. Biol. Chem. 259, 13131-13138, 1984
                                                                                                                                                                                                                    A.Molecule type: protein
A.Residues: 27-217 <NIA>
A.Residues: 27-217 <NIA>
A.Residues: 27-217 <NIA>
A.Residues: 27-217 <NIA>
B. Experimental Source: place:ta
B. Nic A Bhaird, N.; Tipton, K.F.
Biochem. Soc. Trans. 19, 20S, 1991
A.Title: Catechol-O-methyltransferase from human placenta: purification and some propert
A.Reference number: A61283; MUID:91244006; PMID:2037148
A.Recession: A61283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7
                                                                                                               in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, K.,
A;Title: The chemistry of the human lactogenic hormones.
A;Reference number: A94427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Evidence for two
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F:208/Disulfide bonds: Interchain (to 215 in dimeric form) *status experimental F:215/Disulfide bonds: Interchain (to 208 in dimeric form) *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A:Molecule type: DNA
A;Residues: 1.217 <RES>
A;Cross-references: GB:K02401; NID:g181120; PIDN:AAA52115.1; PID:g181121
R;Seeburg, P.H.; Shine, J.; Martial, J.A.; Ullrich, A.; Goodman, H.
Trans. Assoc. Am. Physicians 90, 109-116, 1977
A:IIILE: Nucleotide Sequence of a human gene coding for a polypeptide Sormone.
A;Reference number: I59658: MUID:78160787; PMID:611657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Molecule type: mRNA
A;Residues: 160-217 <RE2>
A;Cross-references: GB:M25118; NID:9181124; PIDN:AAA35721.1; PID:9181125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A.Title: Analysis of a major human chorionic somatomammotropin gene. A:Reference number: 155229; MUID:85030426; PMID:6208192 A:Accession: 155229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A Map position: 17q22-17q24
A; Introns: 4/1; 57/3; 97/3; 152/3
C; Superfamily: prolactin
C; Superfamily: prolactin
C; Sewords: hormone; placenta
F; 1-26/Domain: signal sequence status experimental <SIG>F; 1-26/Domain: signal sequence status experimental <MAI>F; 79-191/Disulfide bonds: status experimental
F; 208-215/Disulfide bonds: (in monomeric form) *status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 381; DB 1; Length 21
Pred. No. 5.4e-30;
8; Mismatches 8; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M. Nature New Biol. 233, 59-61, 1971
A;Title: Amino-acid sequence of human placental lactogen. A;Reference number: A93401; MUID:72016313; PMID:5286363
A;Contents: annotation
R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M. Mature New Biol. 235, 64, 1972
A;Reference number: A93405
A;Contents: annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Cross-references: GDB:119084; OMIM:150200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity 82.0%; les 73; Conservation
                                                         A; Experimental source: placenta
Molecule type: protein: Residues: 27-217 <LIC>
                                                                                                                                                                                                              A; Accession: A94427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Gene: GDB:CSH1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

ó

88

ä

ä

```
C. Accession: B2491
R. Linzer, D. C. Accession: B2491
R. Linzer, D. L. H.; Tallamanter, F.
A. Holo: Chem. 260, 3574-9574, 1985
A. Hitle: Nucleotide sequence of mouse prolactin and growth hormone mRNAs and expressions B2391
A. Reference number: A92548; MUID: 87261358; PMID: 2991252
A. Accession: B2391
A. Molecule type: MRNA
A. Residues: 1-216 < LIN>
A. Residues: 1-216 < LIN A. Residue and A. Residues and A
                                                                                                                                                                                                                                                                                                                                                                                                          bund the cystine residues in equine growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A:Molecule type: protein A:Molecule type: protein A:Molecule type: 42-69:157-190 <ZA3>
R:Roliver, L.; Hartree, A.S.
Biochem. J. 109, 19-24, 1968
A:Title: Amino acid sequences around the cystine residues in horse growth hormone. A:Reference number: A90240; MUID:4855100
A:Accession: A90240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTIPLSRLFUNAMIRAHRLHQLAFUTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIFT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 FPTIPLSRLFDNAMLRAHRLHOLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              somatotropin precursor - mouse
Nishternate names: growth hormone
C.Species: Mus musculus (house mou.)
C.Species: 30:Sep.1987 #sequence_revision ?U.Sep.1987 #text_change 28:May-1999
                                                                                                                                                                                                                                                                                                                                Rizakin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santume, J.A. FEBS Lett. 25, 77-82, 1972
A.Titler Amino acid sequences und the cystine residues in equine grow A; Reference number: A91383
A.Accession: A91383
       A:Molecule type: protein
A:Residues: 1-190 <28x2.
A:Residues: 1-190 <28x2.
FEBS Lett. 34, 353-355, 1973
A:Title: The amino acid sequence of equine growth hormone.
A:Reference number: A91395; MUID:7:220362; PMID:4747849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1; Length 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 38.2%; Score 304.5; DB 1; Length Best Local Similarity 64.8%; Pred. No. 1.8e-22; Matches 59; Conservative 14; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ouery Match 38.5%; ore 306.5; DB 1; Best Local Similarity 65.2%; i ed. No. 9.7e-23; Matches 60; Conservative 14 Mismatches 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Molecule type: protein
A;Residues: 176-190 <0.1>
c:Superfamily: prolactin
C:Keywords: hormone; pituitary
F;52-163,180-188/Disulfide bonds: #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62 PSNREETQQKSNLELLKISLLLIQSWLEPVQL 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62 PSNREETQOKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                             A; Molecule type: protein
A: Residues: 1-190 <2A2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N;Alternate names: growth hormone
G;Species: Equus caballus (domestic horse)
C;Date: 13-Jul-1981 #sequence_revision 13-Jul-1981 #text_change 23-Aug-1996
R;ZaKin, M. M.; Poskus, E.; Langton, A.A.; Ferrara, P.; Santome, J.A.; Dellacha, J.M.; Palnt, J. Pept, Primary structure of equine growth hormone.
A;Title: Primary structure of equine growth hormone.
A;Reference number: A91772; MUID:77005410; PMID:965151
.;
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 FPTIPLSRLFDNAMLRAHRLHQLAFUTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        somatoLrupin - sel whale
N:Alternate names: growth hormone
C;Species: Balaenoptera borealis (sel whale)
C;Date: 07-May-1993 #sequence_revision 07-May-1993 #Lext_change 07-May-1999
C;Accession: PN0140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: GB:S66299; NID:q239355; PIDN:AAB20368.1; PID:q239356
A;Note: sequence extracted from NCBI backbone (NCBIN:66299, NCBIP:66300)
C;Superfamily: prolactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2: Length 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2; Length 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39.0%; Score 310.5; DB 2; Length 67.0%; Pred. No. 4 6e-23; Wiemafches 16; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Riversion: Fronty, Y.A.; Bulatov, A.A.; Osipova, T.A., Biokhimiia 47, 1059-1069, 1982
Biokhimiia 47, 1059-1069, 1982
Alfille: Amino acid sequence of sciwhale somatotropin.
A:Reference number: PN0140; MUID:83000569; PMID:7115813
A:Accession: PN0140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 38.6%; Score 307.5; 08.2; Best Local Similarity 67.0%; Pred. No. 7.7e-23; Matches 61; Conservative 14; Mismatches 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A,Molecule type: protein
A,Residues: 1-190 < YUD>
A,Note: article in Russian with English abstract
S.Superfamily: plactin
C,Keywords: growth factor; hormone
F,52-163,180-188/Disulfide bonds: #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62 PSNREETQQKSNLELLRISHLIJQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity 67.09
hes 61; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
GenCore version ( 1.6
Copyright (c) 1993 - 2003 Compugen Ltd.
```

OM protein . protein search, using sw model

September 16, 2003, 12:33:30; Search time 11.6732 Seconds (without alignments) 604.293 Million cell updates/sec Run on:

US-09-423-100-7
797
1 MFPTIPLSRLFDNAMLRAHR..........IVEQCCTSICSLYQLENYCN 150 Title: Perfect score: Sequence:

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

127863 seqs, 47026705 residues Searched:

127863 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt_41:* Database:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

STIMMARTES

SS	Description	PO1241 homo sapien	P58756 pan troglod		P58343 saimiri bol			P01242 homo sapien			P37886 mesocricetu	P33092 balaenopter		Q99kal galago sene	Q99mb2 nycticebus		P46407 oryctolagus	P01244 rattus norv			P46404 felis silve		P19795 mustela vis			Q99160 monodelphis	062754 trichosurus		7	ovis ar	œ	11	_	P01311 oryctolagus
SUMMARIES	ID	SOMA_HUMAN	SOMA_PANTR	SOMA_MACMU	SOMA_SAIBB	SOM2_PANTR	SOMA_CAL.JA	SOM2_HUMAN	SOM2_MACMU	PLL_HUMAN	SOMA_MESAU	SOMA_BALBO	SOMA_HORSE	SOMA_GALSE	SOMA_NYCPY	SOMA_MOUSE	SOMA_RABIT	SOMA_RAT	SOMA_LOXAF	SOMA_CANFA	SOMA_FELCA	SOMA_PIG	SOMA_MUSVI	SOMA_LAMPA	SOMA_VULVU	SOMA_MONDO	SOMA_TRIVU	SOMA_BOVIN	SOMA_CEREL	SOMA_SHEEP	SOMA_BUBBU	SOMA_MELGA	INS_CERAE	INS_RABIT
	DB	-	٦	-	-	Ч	p-4	~	_	~	_	~	, -		-	-	, - 1	٦	~	٦	~	~	-4	~	-	-	-	-	-	ч	-		П	-
	Length	217	217	217	217	217	217	217	217	217	216	190	216	217	217	216	216	216	190	216	216	216	216	190	190	215	215	217	217	217	217	216	110	110
	Query Match	57.8	57.8	57.7	54.8	54.5	54.2	53.5	50.1	47.8	39.0	38.6	38.5	38.5	38.5	38.2	38.0	38.0	37.8	37.8	37.8	37.8	37.6	37.3	37.1	36.6	36.6	36.3	36.3	36.3	35.4	34.9	34.8	34.8
	Score	461	461	460	437	434.5	3	426.5	399	381	310.5	307.5	306.5	306.5	306.5	304.5	302.5	302.5	301.5	301.5	301.5	301.5	299.5	297.5	295.5	291.5	291.5	289.5	289.5	289.5	282.5	278.5	277.5	277.5
	Result No.		7	٣	4	2	Q	7	80	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	53	30	31	32	33

PO8998 gallus gall	Q9pwg3 struthio ca	P01312 balaenopter	P01316 elephas max	P30406 maraca fasc	P55755 crocodylus	P30410 pan troglod	P01308 homo saplen	P01324 acomys cahi	P34005 chelonia my	P01317 bos taurus	Q91xi3 spermophilu
SOMA_CHICK	SOMA_STRCA	INS_BALPH	INS_ELEMA	INS_MACFA	SOMA_CRONO	INS_PANTR	INS_HUMAN	INS_ACOCA	SOMA_CHEMY	INS_BOVIN	INS_SPETR
~	-	_	_	-	_	٦	~	7	٦,	_	~
216	217	51	51	110	190	110	110	51	191	105	110
34.6	34.4	34.3	34.3	34.3	34.2	34.1	33.9	33.7	33.7	33.4	33.4
275.5	274.5	273.5	273.5	273.5	272.5	272	270	268.5	268.5	266.5	266.5
4	'n	و	7	80	6	0	۳,	42	•	4	Ŋ.

ALIGNMENTS

RESULT SOMA_H	1 Uman
Ω	SOMA_HUMAN STANDARD; PRT; 217 AA.
AC	P01241; Q14405; Q16631; Q9HBZ1; Q9UMJ7; Q9UNL5;
DI	21-JUL-1986 (Rel. 01, Created)
DŢ	01-MAR-1992 (Rel. 21, Last sequence update)
Ę	
OE	Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth
DE	one) (Growth hormone 1).
S	GH1.
os	
ဗ	Chordata:
ဗ	ia; Primates;
×	NCBI_TaxID=9606;
RN	[1]
МP	SEQUENCE FROM N.A. (ISOFORM 1).
RX	MEDLINE=80034477; PubMed=386281;
RA	Roskam W., Rougeon F.;
RI	
RI	gene.";
RL	Nucleic Acids Res. 7:305-320(1979).
N N	
RP	SEQUENCE FROM N.A. (ISOFORM 1).
ž	MEDLINE-79203293; PubMed-377496;
K.	Martial J.A., Hallewell R.A., Baxter J.D., Goodman H.M.;
RT	"Human growth hormone: complementary DNA cloning and expression in
RT	bacteria.";
R.	Science 205:602-607(1979).
X i	[3]
ž :	SECOND NICE FROM NICE (1990) AND FORMARISE ALLERNATIVE SPECIATIONS.
Υ Υ	MEDITINE SECTION SECTION OF SECTI
K 1	F.M., MOOI'R U.D., GOODHAN BAND.
Z f	numan growth normone bus sequence and minns selective possible
2 2	alternative Spicing
7 2	MUCLEIC ACIDS RES. 9:5/19-5/50(1901).
20	CENTENCE COOM N N
, A	JUNE 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
4 4	Appling D H .
£-	"The human growth hormone gene family, nucleotide segmences show
R	d predict a new polypeptide hormone.":
RL	DNA 1:239-249(1982)
Z	[5]
КP	SEQUEN F FROM N.A.
RX	
æ	Chen E.Y., Liao Y.C., Smith J.H., Barrera-Saldana H.A.,
≨.	as R.E., Seeburg P.H.;
E E	The human growth hormone locus: nucleotide sequence, bloiogy, and
KT	evolution.";
RI S	Genomics 4:479-497(1989).
2 0	tol for
Z Z	JUNCTIFUE TOOL TOOL TOOL TOOL TOOL TOOL TOOL TOO
X X	Gu J., Huang OH., Li N., Xu SH., Han ZG., Fu G., Chen Z.;
E.	
2	Submitted (SEP-1999) to the EMBL/Genbank/DDBJ databases.
!	

```
REVIEW
                                                                                                                                        18
TISSUE-PITUITARY:

MEDLINE-20402571: PubMed-10931946;

MEDLINE-20402571: PubMed-10931946;

Gu N.-M., Han Z.-G., Song H.-D., Penq Y.-D., Huang O.-H., Ren S.-X.,

Gu Y.-J., Huang C.-H., Li Y.-B., Jiang C.-L., Fu G., Zhang O.-H.,

Gu B.-W., Dai M., Mao Y.-F., Gao G.-F., Rong R., Ye M., Zhou J.,

Xu S.-H., Gu J., Shi J.-X., Jin W.-R., Zhang C.-K., Wu T.-M.,

Musn G.-Y., Chen Z., Chen M.-D., Chen J.-L.:

"Gene expression profiling in the human hypothalamus-pituitary-adrenal
axis and full-length cDNA cloning."
                                                                                                                                                             SEQUENCE OF 1-26 FROM N.A. MEDLINE-86137933; PubMed-3912261; MEDLINE-86137933; PubMed-3912261; Gray G.L., Baldridge J.S., McKeown K.S., Heyneker H.L., Chang C.N.; Periplasmic production of correctly processed human growth hormone in Escherichia coll: natural and bacterial signal sequences are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIANE-71153968; PubMed-5279528; Niall H.D., Hogan M.L., Sauer R., Rosenbium I.Y., Greenwood F.C.; "Sequences of pituitary and placental lactogenic and growth hormones: evolution from a primordial peptide by gene reduplication."; Proc. Natl. Acad. Sci. U.S.A. 68:866-869(1971).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (In) Griffiths K. (eds.);
Prolactin and carcinogenesis, Proc. fourth tenovus workshop prolactin,
pp.13-20, Alpha Omega Alpha Press, Cardiff (1972).
                                                                                                                                                                                                                                                                            MEDLINE-69289202; PubMed-5810834;
Li C.H., Dixon J.S., Liu W.-K.;
"Human pitultary growth hormone. XIX. The primary structure of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chapman G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J., Turner C., Cary P.D., Crane-Robinson C.; "The 20,000 molecular weight variant of human growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                       "Human pituleary growth hormone. 32. The primary structure of the hormone: revision.":
                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-73092028; PubMed-4675454; MEDLINE-73092028; Dixon J.S., Li C.H.; C.H.; Sequence comparison of human pituitary growth hormone, hume chorionic somatomanmotropin, and ovine pituitary growth and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       paration and some physical and chemical properties.";
Biol. Chem. 256:2395-2401(1981).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'Revised primary structure for human growth hormone.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "The chemistry of the human lactogenic hormones."; (In) Griffiths K. (eds.);
                                                                                                                                      Proc. Natl. Acad. Sci. U.S.A. 97:9543-9548(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          J. Pept. Protein Res. 4:281-287(1972)
                                                                                                                                                                                                                                                                                                                                                                                                                     Arch. Biochem. Biophys. 146:233-236(1971).
                                                                                                                                                                                                                                                                                                                               Arch. Biochem. Biophys. 133:70-91(1969).
                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 27-217, AND REVISIONS. MEDLINE-72143935; PubMed-5144027;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-81117361; PubMed-7462247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 27-61 AND 102-124. MEDLINE-71139765; Pubmed-5279046; Niall H.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nature New Biol. 230:90-91(1971).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-80130196; PubMed-7356479;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REVISIONS TO 119-120 AND 157-159
[7]
SEQUENCE FROM N.A. (ISOFORM 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 27-79 (ISOFORM 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 46-80 (ISOFORM 2)
                                                                                                                                                                                                                               interchangeable.";
Gene 39:247-254(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              lactogenic hormones.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Preparation and some
                                                                                                                                                                                                                                                                                                                                                                                 Dixon J.S.;
                                                                                                                                                                                                                                                                  SEQUENCE OF 27-217.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ..
O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                REVISION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REVISION
                                                                                                                                                                                                                                                                                                                    hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ntall
```

Nat. Genet. 23:373-373(1999).

-I. FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates "The X-ray structure of a growth hormone-prolactin receptor complex."; "Characterization of single-nucleotide polymorphisms in coding regions Cargill M., Altshuler D., Ireland J., Sklar P., Ardlie K., Patil N., Shaw N., Lane C.R., Lim E.P., Kalyanaraman N., Nemesh J., Ziaugra L., Friedland L., Rolfe A., Warrington J., Lipshutz R., Daley G.O., MEDLINE-82052997; PubMed-7028740;
Lewis U.J., Singh R.N., Bonewald L.F., Seavey B.K.;
"Altered proteolytic cleavage of human growth hormone as a result of deamidation."; Cargill M., Altshuler D., Ireland J., Sklar P., Ardlie K., Patil N., Shaw N., Lane C.R., Lim E.P., Kalyanaraman N., Nemesh J., Ziaugra L., Friedland L., Rolfe A., Warrington J., Lipshutz R., Daley G.Q., Lewis U.J., Bonewald L.F., Lewis L.J.; "The 20,000-dalton variant of human growth hormone: location of the amino acid deletions."; "Crystal structure of an antagonist mutant of human growth hormone, 5120R, in complex with its receptor at 2.9-A resolution."; J. Biol. Chem. 271:32197-32203(1996). Sundstroem M., Lundgwist T., Roedin J., Giebel L.B., Milligan D. de Vos A.M., Ultsch M., Kossiakóff A.A.; "Human growth hormone and extracellular domain of its receptor: crystal structure of the complex."; Science 25s:366-313:361-312. 3D-STRUCTURE MODELING.
MEDLINE-88190073; PubMed-3447173;
Cohen F.E., Kuntz I.D.;
Prediction of the three-dimensional structure of human growth hormone."; Baumann G.; "Growth hormone heterogeneity in human pituitary and plasma." Horm. Res. 51 Suppl. 1:2-6(1999). J. X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS). Chantalat L., Chirqadze N.Y., Jones N., Korber F., Navaza J. Pavlovsk A.G., Wlodawer A.; Pavlovsk A.G., Wlodawer A.; resolution.; Protein Pept. Lett. 2:333-346(1995). Somers W., Ultsch M., de Vos A.M., Kossiakoff A.A.; Biochem, Biophys. Res. Commun. 92:511-516(1980). X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS). MEDLINE-95075462; PubMed-7984244; X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS). MEDLINE-97113023: Pubmed-8943275; X-RAY CRYSTALLOGRAPHY (2.8 ANSSTROMS) Biol. Chem. 256:11645:11650(1981). DEAMIDATION OF GLN-163 AND ASN-178 MEDLINE-99318093; PubMed-10391209; MEDLINE-99321812; PubMed-10393484; MEDLINE-92196577; PubMed-1549/76; Genet. 22:231-238(1999). Nature 3: ::478-481(1994). Proteins 2:162-166(1987). VARIANT CYS-105 of human genes Ś Norstedt ERRATUM

m

```
FPIIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQISLCFSESIPT 86
                                                                                                                             112 ALYLVCG -- ERGFFYTPKTRGIVEQ 134
                                                                                                                                                              146 GIOTIMGRLEDG- -- SPRTGOIFKO 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00103; hormone; 1.
PROSITE; PS00266; SOMATOTROPIN_1; 1.
PROSITE; PS00338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBCELLULAR LOCALION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL: L16556; AAA18842.1; -. PIR: 167440; 167410. HSP: P01241: 1AXI. InterPro: IPR001400; SOMATOTropin.
                                                                                                                                                                                                                                                                                                                                                                       hormone) (Growth hormone 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hormone; Pitultary; Signal.
SIGNAL 1 26
                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cercopithecinae; Macaca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217
191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 27-217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID-9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tissues
                                                                                                                                                                                                                                                          SOMA_MACMU P33093;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
                                                                                       q
                                                                                                                               à
                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation .
                                                                                                                                                                  62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS------HLVE 111
                                                                                                                                                                                      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                               27 FPIIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQISLCFSESIPT 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *Revol A., Esquivel D., Santlago D., Barrera-Saldana H.;
*Revol A., Esquivel D., Santlago D., Barrera-Saldana H.;
*Independent duplication of the growth hormone gene in three
*Anthropoidean lineages.";
*Submitted (ARF-2001) to the EMBL/GenBank/DDBJ databases.
-I-FUNCTION: Plays an important role in growth control. Its major
-role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the
*Anthropoidear and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                         28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pan troglodytes (Chimpanzee).
Eukaryota; Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
                                                       16:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tissues (By similarity).
-! - SUBCELCUAR LOCATION: Sereted.
-! - SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                 Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20; Indels
                                                       20; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOMATOTROPIN.
BY SIMILARITY.
BY SIMILARITY.
; FEA295EDE0518674 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; DB 1;
4.6e-38;
               Score 461; DB 1;
Pred. No. 4.6e-38;
7; Mismatches 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         57.8%; Score 461; 70.3%; Pred. No. 4
                                                                                                                                                                                                                                          112 ALYLVCG--ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                            146 GIQTLMGRLEDG --- SPRTGQIFKQ 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; AF134232; AAL72284.1; -.
InterPro. IPR001400; Somatotropin.
Pfam; PF00103; hormone; 1.
PRINTS; PR00836; SOWATOTROPIN.
PROSITE; PS00266; SOWATOTROPIN.
PROSITE; PS00338; SOWATOTROPIN.1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24843 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hormone) (Growth hormone 1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hormone; Pituitary; Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 70.33
Matches 102; Conservative
             Ouery Match
Best Local Similarity 70.33
Matches 102, Conservative
                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27
79
208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID-9598
                                                                                                                                                                                                                                                                                                                                                                         SOMA_PANTR
P58756:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIGNAL
                                                                                                                                                                                                                                                                                                                                     RESULT 2
SOMA_PANTR
                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                    a
                                                                                                                                                                                                                                          à
```

2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss institute of Bioinformatics and the EMBL outstation the User of Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                         62 PSNREETQQKSNLELLRISLILLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE-86129460: PubMed-3080959;
Li C.H., Chung D., Lahm H.W., Stein S.;
Li C.H., Chung D., Lahm H.W., Stein S.;
Li C.H., Chung D., Lahm H.W., Stein S.;
Li C.H., Structure of monkey pituitary growth hormone.":
Arch. Biochem. Biophys. 245:287-291(1986).
-!- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-OCT-1993 (Rel. 27, Created)
01-OCT-1994 (Rel. 20, Last sequence update)
01-OCT-1994 (Rel. 41, Last annotation update)
Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituliary growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. MEDMEd-8414.17; MEDMEDTRE-9408124; Pubmed-8414.17; MEDLINE-9408124; Pubmed-8414.17; Calon Tr., Durning M., Fishe, J.M., Fowler P.D.; Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxytribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.; Endocrinology 133:1744-1752(:993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Macaca mulatta (Rhesus macaqu.).
Eukaryota, Metazoa: Chordata; Craniata; Vertebrata; Euteleosiomi;
Mammalia; Eutheria: Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -:- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BY SIMILARITY.
BY SIMILARITY.
E -> Q (IN REF. 2).
N -> D (IN REF. 2).
W, 2C5180341EEC46D0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOMATOTROPIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24913 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100
179
217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE STATE STATE
```

```
SOURCE STATE TO SOURCE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DA PP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROI entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as iong as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.rh/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86
                                                                                            2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFI,ONPQTSLSFSESIPT 61
                                                                                                                    "Episodic evolution of growth hormone in primates and emergence of the "Episodic evolution of growth hormone in primates and emergence of the species specificity of human growth hormone receptor.";

Mol. Biol. Evol. 18:945-95(2001).

POL. Biol. Evol. 18:945-95(2001).

POLE UNITION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27 FPTIPLSRLLDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Salniri boliviensis boliviensis (Bolivian squirrel monkey).
Eukaryota: Metazoa; Chordata; Craniata; Vertebrala; Euteleostomi;
Mammalia; Eutheria; Primates; Platyrrhini; Cebidae: Cebinae; Saimiri.
                                                 Gaps
                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11. SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        54.8%; Score 437; DB 1; Length 217; 91.3%; Pred. No. le-35;
Length 217;
                                           1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOMATOTROPIN.
BY SIMILARITY.
BY SIMILARITY.
951528992C529F7 CRC64;
57,7%; Score 460; DB 1;
98.9%; Pred. No. 5.8e-38;
iive 0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                        28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Somatotropin precursor (Growth hormone).
                                                                                                                                                                                                                      PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL 93
                                                                                                                                                                                                                                                                                                                                                            217 AA.
                                                                                                                                                                                            62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; AF339060; AAK62287.1; ...
InterPro; IPR001400; Somatotropin.
Pfam; PF00103; hormone; 1.
PRINTS; PR00836; SOMATOTROPIN.
PROSITE; PS00266; SOMATOTROPIN.1; 1.
PROSITE; PS00338; SOMATOTROPIN.2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-21265430; PubMed-11371582;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       208 215 E
217 AA; 24864 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hormone, Pituitary, Signal. SIGNAL 1 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tissues (By similarity) subcellular location: S
                                                 90; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity
Matches 84; Conserv
                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID-39432
                                                                                                                                                                                                                                                                                                                                                               SAIBB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DISULFID
                                                                                                                                                                                                                                           87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
       Query Match
                            Best Local
                                              Matches
                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                              g
                                                                                                                                                                                            à
                                                                                                                                                                                                                                        g
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute ( Bloinformatics and the EMBL outstation the European Bloinformatics I stitute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement not removed. Usage by and for commercial entities requires a license ement (See http://www.isb-sib.ch/announce/or send an email to license reliable.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98
                                                                                                                                                                                                                                                                                                                                                                                                    2 FPT1PLSRLFDNAMLRAHKLHOLAFDTYOEFEEAY1PKEOKYSFLQNPQTSLSFSES1PT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27 FPTIPLSRLFDNAMLRAHRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL-----GTGPRFVNQHL 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28 FEB-2003 (Rel. 41, Last sequence update)
28 -FEB-2003 (Rel. 41, Last annotation update)
Growth hormone variant precursor (GH-V) (Placenta-specific growth hormone) (Growth hormone 2).
                                                                                                                                                                                                                                                                                                                      Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Pan.
NCBI_TaxID=9598;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 1.8e-35;
4; Mismatches 9; Indels 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -:- SUBCELLUIAR LOCATION: Screted.
-:- TISSUE SPECIFICITY: Expressed in the placenta.
-:- SIMILARITY: BELONGS TO THE SCMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1592A429075677DE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GROWTH HORMONE VARIANT.
BY SIMILARITY.
BY SIMILARITY.
217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (Rel. 41, Created)
(Rel. 41, Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    54.5%; Score 434.5; 78.9%; Pred. No. 1.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hormone, Placenta, Signal, Slycoprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; AF374233; AAL72285.1;
InterPro; IPR001400; Somatorropin.
Pfam: PF00103; hormone; 1.
PROSITE; PS00266; SOMATOTROPIN_]: 1
PROSITE; PS00338; SOMATOTROPIN_2: 1.
                                                                                                                              PRT;
                                                                                                                                                                       28-FEB-2003 (Rel. 41, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24990 MW;
                                                                                                                                                                                                                                                                                                      troglodytes (Chimpanzee).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity 78.9
Nes 90; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          217
191
215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27 2
79 1
208 2
217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOMA_CALJA
Q9GMB3;
28-FEB-2003 (
28-FEB-2003 (
                                                                                                                            SOM2_PANTR
P58757;
                    87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                  RESULT 5
SOM2_PANTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOMA_CALJA
```

S

```
MEDLINE-83182010; PubMed-7169009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Baumann G.;
                                                                                                                                                                                                                             evolution.
                                                                                                   proteins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REVIEW.
 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its wase by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                      Ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                2 FPTIPLSRLFUNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                        It also stimulates
                                                                                                                                                                                                                                                                                                                                                                                                                      U; Caps
                                                                        P01242; P09587;
21-JUL-1986 (Rel. 01, Created)
28-FEB-2003 (Rel. 41, Last anotation update)
15-SEP-2003 (Rel. 42, Last anotation update)
Growth hormone variant precursor (GH-V) (Placenta-specific growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Manmalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
NCBL_TaxID-9606;
                          Callithrix jacchus (Common marmoset).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae;
                                                                                                                                                                       tissues (By similarity).
1. SUBCELIULAR LOCATION: Secreted.
1. SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                   Length 217;
                                                                                                                                                                                                                                                                                                                                                                                          54.2%; Score 432; DB 1; Length 217
91.2%; Pred. No. 3.2e-35; Pred. No. 3.2e-35;
                                                                                                                                                                                                                                                                                                                                                       SOMATOTROPIN.
BY SIMILARITY.
BY SIMILARITY.
: E102151A12CE6192 CRC64;
 28-FEB-2003 (Rel. 41, Last annotation update) Somatotropin precursor (Growth hormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    217 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                               BY SIMILARITY.
                                                                                                                                                                                                                                                                                                Pfan. PFO01031 hormone: 1. PROSITE; PSO0365: SOMATOTROPIN. PROSITE; PS00365: SOMATOTROPIN. 1: 1. PROSITE; PS00338; SOMATOTROPIN. 2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. (ISOFORM 1).
                                                                                                                                                                                                                                                                                  EMBL; AJ297563; CAC03481.1; -.
                                                                                                                                                                                                                                                                                                                                                                                  24959 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hormone) (Growth hormone 2).
                                                                                                                                                                                                                                                                                                                                      Hormone; Pituitary; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity 91.2
es 83; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                               191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo saptens (Human).
                                                                                                                                                                                                                                                                                                                                                        27 2
79 1
208 2
217 AA;
                                                               NCBI_TaxID=9483;
                                                        Callithrix.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOM2_HUMAN
                                                                                                                                                                                                                                                                                                                                                               DISULFID
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                 SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
Attacher R.D. Follower 1.24 / 35.0.

Attacher R.D. Collins F.S. Wagner L., Shenmen C.M., Schuler G.D., Alschul S.F., Zeeberg B., Tetcher K.H., Schaefer C.F., Bhat N.K., Alschul S.F., Zeeberg B., Tetcher K.H., Schaefer C.F., Bhat N.K., Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.F., Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L., Scheeter Z.F., Bonaldon M.F., Casavant T.L., Scheeter T.E., Brownstein M.J., Usdin T.B., Toshyuki S., Carninci P., Prange C., A. Brownstein M.J., Usdin T.B., Mcrian K.J., Malek J.A., Gunarathe P.H., Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J., A. Richards S., Morley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W., Villalon D.K., Muzny D.M., Sodergren F.J., Lu X., Globs R.A., Ahly M. Madan A., Rotting M. Sodergren F.J., Lu X., Globs R.A., Whiting M., Madan A., Rotting A., Sodergren E.J., Lu X., Globs R.A., A., Whiting M., Madan A., Schein J.W., Shevchenko Y., Bouffard G.G., Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C., Shevchenko Y., Shallus D.F., Schnerch A., Schein J.E., Jones S.J.M., Marra M.A., Schein J.E., Schein J.E., Schein J.E., Schein J.E., Schein J.E., Jones S.J.M., Marra M.A., Schein J.E., Sch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- SUBUNIT: Monomer, dimer, trimer, tetramer and pentamer, disulfide-
linked or non-covalently associated, in homopolymeric and
heteropolymeric combinations. Can also form a complex either with
GRBP or with the alpha2-macroglobulin complex.
-!- SUBCELLUIAR LCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The human growth hormone ocus: nucleotide sequence, biology, and
                                                                                                                                                                                                                                                                                                                                                                                   mRNA in the
                                                                                                                                                                                                                                                                                                                    Cooke N.E., Ray J., Emery J.J., Liebhaber S.A.; *Two distinct species of human growth hormone-variant mRNA in human placenta predict the expression of novel growth hormone.
"The human growth hormone gene family: nucleotide sequences recent divergence and predict a new polypeptide hormone."; DNA 1:239-249(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Igout A., Scippo M.L., Frankenne F., Hennen G.; "Cloning and nucleotide sequence of placental hGH-V cDNA.": Arch. Int. Physiol. Biochim. 96:63-67(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINES-89307277, 4760;
MEDLINES-89307277, PubMed=27. 4760;
Chen E.Y., Liao Y.C., Smith J.H., Barrera-Saldana H.A.,
Gelinas R.E., Seeburg P.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Event-Alternative splicing; Named isoforms=2;
Name=1; Synonyms-CH-V1;
IsoId=P01242-1; Sequence=Displayed;
Name=2; Synonyms-GH-V2;
                                                                                                                                                                                                                               SEQUENCE FROM N.A. (ISOFORM: 1 AND 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE=Placenta;
MEDLINE=22388257; PubMed=12477932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-99321812; Pubmed-10393484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Biol. Chem. 263:9001-9006(1988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. (ISOFORM 1).
MEDLINE-89024984; Pubmed-2460050;
                                                                                                                                                                                                                                                                                    MEDLINE-88243769; PubMed-33 :057;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genomics 4:479-497(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SECUENCE FROM N.A.
```

```
Cercopithecinae; Macaca.
                                                                                                                                               SEQUENCE FROM N.A.
                                                               SEQUENCE FROM N.A.
                  NCBI_TaxID=9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                1ssnes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLL_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 9
  Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ô
                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the SWISS institute of Bloinformatics and the FWBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LASRDWGEKHC "LESSOALTGENSPYSSPLVNPDGLSLD
PGGEGGKWMNE :REQCPSAWPLLFLHFAEAGRWUPPDWA
DLOSYLCOV ( 1 isoform 2).
FITI -VSPV 200503.
R -> W (IN dbSNP:5389).
/FITI-vSPV 20RP:5389).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED (GLCNAC. . .) (POTENTIAL).
RLEDGSPRIGQIFNQSYSKEDTKSHNDDALLKNYGLLYCFR
KDMDKVETFLRIVQCRSVEGSCGF -> VRVAPGIPNPGAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 426.5; DB 1; Length 217;
Pred. No. 1.1e+34;
4; Mismatches 10; Indels 11; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL------GTGPRFVNQHL 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOM2_MACMU STANDARD: PRI; 217 AA. 007370: Q28494; Clasted) Linov-1997 (Rel. 35, Created) 01-NOV-1997 (Rel. 35, Last sequence update) 28-FEB-2003 (Rel. 41, Last annotation update) Growth hormone variant precursor (GH-V) (Placenta-specific growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Cranlata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam. PF00103; hormone; 1.
PROSITE; PROOX66; SOMATOTROPIN_1; 1.
PROSITE; PS00348: SOMATOTROPIN_2; 1.
Hormone; Placenta; Signal: Glycoprotein; Alternative splicing;
               Note-No experimental confirmation available;
-!- TISSUE SPECIFICITY: Expressed in the placenta.
-!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -> I (IN REF. 2).
789324698E822F96 CMC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GROWTH HORMONE VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BY SIMILARITY
BY SIMILARITY
  IsoId-P01242-2; Sequence-VSP_006203;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genew; HGNC:4262; GH2.
MIM: 139240; ...
10.00:00:0010180; F:peptide hormone: TAS.
InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Macaca mulatta (Rhesus macaque).
                                                                                                                                                                                                                                                                                                                                                                          BC020760; AAH20760.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24999 MM:
                                                                                                                                                                                                                                                                                          EMBL, J03756, AAB59547.1; -. EMBL, J03756, AAB59548.1; -. EEMBL, M38451; AAA35891.1; -. EMBL, J03071; AAA25552.1; -.
                                                                                                                                                                                                                                                                        EMBL; K00470; AAA98619.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 53.5%;
78.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hormone) (Growth hormone 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity 78.1 es 89; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26
217
191
215
215
216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : 09
                                                                                                                                                                                                                                                                                                                                                                                              PIR; A28072; STHUV2.
PIR; D32435; STHUV.
HSSP; P01241; 1A22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   109 ;
217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Polymorphism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIGNAL
                                                                                                                                                                                                                                                                                                                                                          EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOM2_MACMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 8
  SOTILITE TETTET TO DESCRIPTION OF THE STATE TO THE SOURCE OF THE SOURCE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the SWISS institute of Bioonformatics and the EMBL outstation. the Lucopean Bloinformatics institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb.sib.ch/announce/or send an email to license@lsb.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62 PSNREETQOKSNLELLRISLLLIQSWLEPVQLGTGPRFVNOHLCGSHLVEA-----LY 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27 FPIIPLSWIFNTAVFRAHHLHKLAFDTYPKLEEAYIPKEQKYSFLRNPQTSLCFSESIPT 86
                                                                                                                                                                                                                                            2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              use by
modified and
entities requires.

or send an email to liv.

DR HEMBL: U02293; AAA03391.37.

DR HEMBL: L16555; AAA0380.13.

DR HIR: 167411: 167411

DR HIR: PRO0131; hormone; 1.

DR PROSITE; PS00036; SOMATOTROPIN.

DR PROSITE; PS000389; SOMATOTROPIN.

DR PROSITE; PS00389; SOMATOTROPIN.

DR PROSITE; PS000389; SOMATOTROPIN.

DR PROSITE; PS0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SUBCELLULAR LOCATION: Secreted (By similarity).
-!- IISSUE SPECIFICITY: Expressed in the placenta.
-!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19; Indels
Golos T.G.;
Submitted (JAN-1994) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5.4e-32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        217 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           50.1%; Score 399; DB 66.9%; Pred. No. 5.4e ive 9; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                   TISSUE-Placenta;
MEDLINE-94008724; PubMed-8404617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLL_HUMAN STANDARD;
P01243;
21-JUL-1986 (Rel. 01, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity 66.9
les 85; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           140 LKKLEEG 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         115 LVCGERG 121
```

```
SEQUENCE-12388257: P. DMGG-12477932:

TISSUE-12388257: P. DMGG-12477932:

A KLAUSE-PLACENDA, A. Grouse L.H., Derge J.G.,

KIAUSER R.D., Collins F.S., Wagner L., Schemen C.M., Schuler G.D.,

A Altschul S.F., Zeeberg B., Buetow K.H., Schecfer C.F., Bhat N.K.,

A Altschul S.F., Zeeberg B., Buetow K.H., Schecfer C.F., Bhat N.K.,

A Altschul S.F., Jordan H., Moore T., Max S.I., Wang J., Hisleh F.,

B Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,

B Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,

B Brownsteln M.J., Usdin T.B., Toshlyuki S., Carninci P., Prange C.,

R Raha S.S., Loguellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,

R Raha S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,

R Rhohards S., Worley K.C., Hale S., Garcia A.H., Gay L.J., Hulyk S.W.,

R Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Glubs R.A.,

R Ahlting M., Madan A., Young A.C., Shevehenko Y., Bouffard G.G.,

R Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,

R Adriquez A.C., Grimwood J., Schmutz J., Myers R.M.,

R Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,

Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.,

R Generation and initial analysis of more than 15,000 full-length

M Drock Nath Least C.DNA Sequences."
                                                                                                                                                                                                                            Selby M.J. Bartea A. Bartea J.D. Bell G.I., Eberhardt N.L.:
"Analysis of a major human chorionic somatomammotropin gene. Evidence for two functional promoter elements.";
J. Biol. Chem. 259:13131-13138(1984).

SEQUENCE FROM N.A. (GENE CSH2).
MEDLINE-87161235; FubMed-3030680;
Hirt H., Kimchman J., Birnbaum M.J., Chen E.Y., Seeburg P.H.,
Eberhardt N.L., Barta A.;
The human growth hormone gene locus: structure, evolution, and allelic variations.";
01-APR-1988 (Rel. 07, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation update)
Lactogen precursor (Choriomanmotropin) (Chorionic somatomammotropin).
CSSH AND CSH2.
Homo sapiens (Humac).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-89307277; PubMed-2744760;
Chen E.Y., Lido Y.C., Smith D.H., Barrera-Saidana H.A., Gelinas R.E.
Seeburg P.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "The human growth hormone locus: nucleotide sequence, biology, and evolution.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Barrera-Saldana H.A., Seeburg P.H., Saunders G.F.; "Two structurally different genes produce the same secreted human placental lactogen hormone.";
                                                                                                            Eukaryota; Metazoa: Chordata: Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CF 50-217 FROM N.A.
MEDLINE-78071761; PubMed-593368;
Shine J., Seeburg P.H., Martial J.A., Baxter J.D., Goodman H.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seeburg P.H.; "The human growth hormone gene family: nucleotide sequences show recent divergence and predict a new polypeptide hormone."; DNA 1:239-249(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. (GENES CSH1 AND CSH2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         r. Biol. Chem. 258:3787-3793(1983).
                                                                                                                                                                                               SEQUENCE FROM N.A. (GENE CSH1).
MEDLINE-85030426; PubMed-6208192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SECUENCE FROM N.A.
MEDLINE-83160916; PubMed=6300056;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-83182010; PubMed-7169009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genomics 4:479-497(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                         NCBI_TaxID-9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb:sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLIN -79173081: PubMed-438159;
Schnetu: T A.B., Kowalski K., Russell J., Sherwood L.M.;
Schnetu: T A.B., Kowalski K., Russell J., Sherwood L.M.;
Identification of the interinal disulfide bonds of dimeric human placental lactogen.;
J. Biol. Chem. 254:1782-3787:1979.
J. Biol. Chem. 254:1782-3787:1979.
J. BIOL Chem. 254:1782-1787:1979.
J. FUNCTION: SIMILAR TO THAT OF SOWATOTROPIN.
J. MISCELLANEOUS: THE SEQUENCE OF CSHI IS SHOWN.
J. SIMILARITY: BELONGS 10 THE SOWATOTROPIN/FROLACTIN FAMILY.
Construction and analysis of recombinant DNA for human chorionic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INTERCHAIN (WITH C-215 IN A DIMER).
INTERCHAIN (WITH C-208 IN A DIMER).
P -> A (IN CSH2).
/FIId-VAR_007166.
                                                                                                                                                                                   somatomammotropin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                               Sherwood L.M., Handwerger S., McLaurin W.D., Lanner M.:
Nature New Biol. 235:64-64(1972).
                                                                                                                                                                                                                                                                              MEDLINE-72016313; PubMed-5286363; Sherwood L.M., Handwerger S., McLaurin W.D., Lanner "Amino-acid sequence of human placental lactogen."; Nature New Biol. 233:59-61(1971).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IS -> L (IN CSH2).
/FTId-vAR_001167.
| -> T (IN REF. 9).
MISSING (IN REF. 9).
MISSING (IN REF. 9).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hormone, Placenta, Multigene family, Signal.
                                                                                                                                                     Li C.H., Dixon J.S., Chung D.;
"Amino acid sequence of human chorionic s
Arch. Biochem. Biophys. 155:95:110(1973).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or send in email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LACTOGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MIM: 150200; -.
GO; GO:0007565; P:pregnancy: TAS.
InterPro; IPRO01400; Somatctropin.
Ptam: PFG0103; hormone: 1.
PROSITE; PS00266; SOMATOTROPIN_1: 1.
PROSITE; PS00338; SOMATOTROPIN_2: 1.
                                                                                                                                 MEDLINE-73201971; PubMed-4712450;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL: V00573; CAA22836.1; EMBL: J00289; AAA98747.1; EMBL: K02401; AAA52115.1; EMBL: M15894; AAA52116.1; EMBL: J03071; AAA5251.1; EMBL: J00118; AAA96621.1; EMBL: BC005921; AAH02717.1; EMBL: BC005921; AAH02756.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INTERCHAIN DISULFIDE BONDS
                                 somatomammotropin.";
Nature 270:494-499(1977).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genew; HGNC:2440; CSH1.
Genew; HGNC:2441; CSH2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      215
208
208
215
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      84
95
116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR; A26449; A26449.
PIR; C32435; LCHUC.
HSSP; P01241; 1A22.
                                                                                                                                                                                                                                                           SEQUENCE OF 27-117.
                                                                                                           SEQUENCE OF 27-217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84
95
116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                      ERRATUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /ARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIGNAL
```

g

ð

a

ò

```
2 FPTIPLSRLFDNAMLRAHRLHQLAFUTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi;
Mammalia, Eutheria, Cetartiodactyla, Cetacea, Mysticeti;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amino acid uptake and , itein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38.6%: Score 307.5; DB 1; Length 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SÜBGELLÜLAR LOCATION: Secreted.
-!- SIMILARITY: BELONGS TO THE SOMATOFROPIN/PROLACTIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HY SIMILARITY,
HY SIMILARITY,
) 09FBFF6DE14A75D6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-83000569; PubMed-7115813:
Yuddacv N.A., Pankov Y.A., Bulatov A.A., Osipova T.A.;
Amino acid sequence of seiwhale somatotropin.';
Biokhimila 47:1059-1069(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. 4.3e-23;
                                                                                                                                                                                                                                                                                                                                                                  01-0CT-11)3 (Rel. 27, Created)
01-0CT-1993 (Rel. 27, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOMA_HORSE STANDARD; PRT; 216 AA. P01345; 21-JUL-1996 (Rel. 01, Created) 20-INV-1995 (Rel. 32, Last sequence update) 28-FEB 2003 (Rel. 41, Last annotation update)
                                                                                                                             62 PSNREETQQKSNLELLRISI. LIQSWLEPVQ 92
|:|::| ||::|||| |||||||| |||
60 PANKDEAQQRSDVELLRFSLLLIQSWLGPVQ 90
                                                                                                                                                                                                                                                                                                             190 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14; Mismatches
                                                                                                62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIR: PN0140: PN0440.
HSSP: P01241; 1AXI.
InterPro: IPR004400: Somatc: Topin.
Pfam: PF00103: hormone: 1.
PROSITE: PS00266: SOMATO!RCHIN.]: IPROSITE: PS00388: SCMATO!RCHIN.]: IPROSITE: PS00338: SCMATO!RCHIN.]
                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Balaenoptera borealis (Sei whale)
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Somatotropin (Growth hormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Balaenopteridae; Balaenoptera
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190 AA; 21835 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY PARTIAL SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 67.0%
Matches 61; Conservative
                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hormone: Pituitary.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_Tax1D-9768
                                                                                                                                                                                                                                                                                                             SOMA_BALBO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DISULFID
DISULFID
SEQUENCE
                             27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                           P33092
                                                                                                                                                                                                                                                                                   SOMA_BALBO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOMA_HORSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94444
9444
                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                              SOUTH TERMS OF THE TRANSPORT OF THE TRAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Blacinformatics and the EMBL curstation. the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                    4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNPQTSLSFSESIPTPS 63
                                                                                                                                                                                                                                                 It also stimulates
                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Southard J.N., Sanchez-Jimenez F., Campbell G.T., Talamantes F.:
"Sequence and expression of hamster prolactin and growth hormone
massenger RNAs."
Endocrinology 129:2065-2971(1991).

-I- FUNCTION: Plays an important role in growth control. Its major
role in stimulating body growth is to stimulate the liver and
other tissues to secrete IGF-I. It stimulates both the
differentiation and proliferation of myoblasts. It also stimulate
amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                           ..
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -1- SUBCELLULAR LOCATION: Secreted.
-1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 216;
                                                                                         47.8%; Score 381; DB 1; Langth 217; 82.0%; Pred. No. 3.2e-30; Ative 8; Mismatches 8; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BY SIMILARITY.
SOMATOTROPIN.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
W; 3B69CE32AB6F1166 CRC64;
      SDD -> BBS (IN REF. 9).
235B0DC7A713F431 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39.0%; Score 310.5; DB 1 67.0%; Pred. No. 2.5e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-OCT-1994 (Rel. 30, Created)
01-OCT-1994 (Rel. 30, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Overy Match

S9.0%; C.2.5e
Best Local Similarity 67.0%; Pred, No. 2.5e
Matches 61; Conservative 13; Mismatches
                                                                                                                                                                                                                                                                                                                                                                               64 NREETOQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Somatotropin precursor (Growth hormone) GH1 OR GH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mesocricetus auratus (Goiden hamster).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF00103; hormone; 1.
PROSITE; PS00266; SOMATOTROPIN_1: 1.
PROSITE; PS00338; SOMATOTROPIN_2: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-92063850; PubMed-1954881;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ISSP; P01246; 1BST.
InterPro; IPR001400; Somatotropin.
      136 S
25020 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24690 MW:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; $66299; AAB20368.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hormone; Pituitary; Signal
                                                              Query Match
Best Local Similarity 82.vv
Best Local 3; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                216
189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           78 1
206 2
216 AA;
      134 1
217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIR; B49159; B49159.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID-10036;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOMA_MESAU
      CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOMA_MESAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 10
```

61

59

61

2 FPTIPLSRLFDNAMLRAHRLHOLAFDTYGEFEEAYIPREQKYSFLQNPQTSLSFSESIPT

Φ

```
2 FPTIPL/SRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSFSIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
                                                                                                                                    SOMA_GALSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hatches
                                                                                                                     RESULT 13
                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bloinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Biochem. J. 109:19-24(1968).

-!- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate hiver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino and uptake and proliferation synthesis in muscie and other
                                                                                                                                                                                                                                                                              PRELIMINARY SEQUENCE OF 27-216.
MEDLINE-74020362; PubMed-4747849;
SASTÍN M.M., POSKUS E., Dellacha J.M., Paladini A.C., Santome J.A.;
"The amino acid sequence of equine growth hormone.";
FEBS Lett. 34:353-355(1973).
                                                                                                                                                                                                                                                                                                                                                                          Zakin M.M., Poskus E., Dellacha J.M., Paladini A.C., Santome J.A.; *Amino acid sequences around the cystine residues in equine growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-68368390; PubMed-4876100;
Oliver L., Hartree A.S.;
"Amino acid sequences around the cystine residues in horse growth
                        Equus caballus (Horse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
                                                                                                                                                                                                MEDLINE-77005410; PubMed-965151;
Zakin M.M., Poskus E., Langton A.A., Ferrara P., Santome J.A.,
Dellacha J.M., Paladini A.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUBCELLULAR LOCATION: Secreted.
SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24423 MW; 37AB3173834D11AC CRC64;
                                                                                                              MEDLINE-94266171; Pubmed-8206392;
Ascocio-Martinez J.A., Barrera-Saldana H.A.;
Sequence of a cDNA encoding horse growth hormone.";
Gene 143:299-300(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38.5%; Score 306.5; DB 1;
65.2%; Pred. No. 6.2e-23;
11ve 14; Mismatches 17;
                                                                                                                                                                                                                                       "Primary structure of equine growth hormone.";
Int. J. Pept. Protein Res. 8:435-444(1976).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOMATOTROPIN
Somatotropin precursor (Growth hormone)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00103; hormone; 1.
PROSITE; PS00266; SOMATOTROPIN_1; 1.
PROSITE; PS00338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 68-95 AND 183-216.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; U02929; AAA21027.1; -. HSSP; P01246; 1BST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hormone; Pituitary; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                 FEBS Lett. 25:77-82(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE OF 202-216.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             206 .
216 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 60; Conserv
                                                                                                                                                                           [2]
SEQUENCE OF 27-216.
                                                                                            SEQUENCE FROM N.A.
                                                                NCBI_TaxID-9796;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hormone."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIGNAL
```

ä

Gaps

Η;

Indels

Conservative

```
This SWISS-PROT entry is considered through a collaboration between the Swiss Institution. I Bioinformatics and the EMHS outstation the European Bioinformatic institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement. Since removed, Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86
Adkins R.M., Nekrutenko A., Li W.-H.;
*Bushbaby growth hormone is much more similar to nonprimate growth hormones than to rhesus monkey and human growth hormones.";
hormones than to rhesus monkey and human growth hormones.";
hormole Evol. 18:55-61(2001).
-!- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-I. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-1QNTQAAFCFSETIPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 FPTIPLSRLFDNAMLKAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Galago senegalensis (Northern iesser bushbaby).
Eukaryota, Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Prima·os: Strepsirhini; Galagonidae; Galago.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -!- SUBCELLULAR LOCATION: S. reted.
-!- SIMILARITY: BELONGS TO 1 E SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOMATOTROFIN.
BY SIMILARITY.
BY SIMILARITY.
; ZFB61CD31136F005 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          38.5%; Score 306.5; DB 1
65.2%; Pred. No. 6.2e-23;
                                                                                                                                                                                                                                                                                                                              28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Somatotropin precursor (Growth hormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62 PSNREETQQKSNLELLRISHLIQSWLEPVQL 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL 93
                                                                                                                                                                                                                                                                           217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS: PRO0836; SOMATOTRUPIN.
PROSITE; PS00266; SOMATOTRUPIN_1; 1.
PROSITE; PS00338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro: IPR001400; Somitotropin. Pfam; PF00103; hormone:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24481 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; AF292938; AAC44952.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hormone; Pituitary; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26
217
190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       207 2
217 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              lust
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID-9465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PubMed=11141192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HSSP: P01246;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ma.
Local S...
60;
                                                                                                                                                                                                                                                                           SOMA_GALSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

```
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DISULFID
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                              -: SUBCELLULAR LOCATION: Secreted.
-: SUBLEARTY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Baloinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not remo. d. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-1QNAQAAFCFSETIPA 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 PPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                           hormone.";
Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.
Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.
I-FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                  Wallis O.C., Zhang Y.P., Wallis M.; "Cloning and characterisation of the gene encoding slow loris growth hormone.";
                                                                                                              Nycticebus pygmaeus (Pygmy slow loris).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Strepsirhini; Loridae; Nycticebus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1; Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17; Indeis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BY SIMILARITY.
SOMATOTROPIN.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
A: 7FE90D77ES9085F6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38.5%; Score 306.5; DB 1 65.2%; Pred. No. 6.2e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Rel. 06, Created)
(Rel. 06, Last sequence update)
(Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28 FEB-2003 (Rel. 41, Created)
28 FEB-2003 (Rel. 41, Last sequence update)
28 FEB-2003 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL 93
                         217 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Somatotropin precursor (Growth hormone) GH1 OR GH.
                                                                                       Somatotropin precursor (Growth hormone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRINTS; PROUB16; SOMATOTROPIN.
PROSITE; PSO0266; SOMATOTROPIN_1; 1.
PROSITE; PSO0338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AJ297562; CAC03504.1; -. HSSP; P01246; 18ST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               207 215 F
217 AA: 24395 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hormone, Pituitary: Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF00103; hormone; ]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                    NCBI_TaxID=101278;
                                                                                                                                                                                          IISSUE-Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-JAN-1988 (
01-JAN-1988 (
28-FEB-2003 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOMA_MOUSE
P06880;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :09
                         SOMA_NYCPY
Q9GMB2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 15
SOMA_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SE DIT SE
                            qq
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute are no restrictions on its wase by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 FPTIPLSRLFDNAMLRAHRI.HQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -i- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulatine the liver and other tissues to secrete iGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates
                                                                                                                                                                                                        Linzer D.I.H., Talamantes F.; "Interesting and growth hormone mkNAs and "Nucleotide sequence of mouse prolactin and growth hormone mkNAs and expression of these mkNAs during pregnancy."; "I Biol. Chem. 260:9574-9774[1985].
                                                        Sciurognathl; Muridae; Murinae; Mus
                            Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. Brockmann G., Schwerin M.;
ne-encoding gene and its promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         amino acid uptake and protein synthesis in muscle and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38.2%; Score 304.5; DB 1; Length 216; 64.8%; Pred. No. 9.7e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ind. 1s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98666A (AE25D65FC CRC64)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SCMALCIRCPIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Search completed: September 16, 7 33, 12:38:52 Job time: 12.6732 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS00266; SOMATOTRO N_1; 1.
PROSITE; PS00388; SOMATOTRO N_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -! - SUBCELLULAR LOCATION: Secreted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001400; Somatot: ppin.
                                                                                                                                                                                                                                                                                                                                                                                                                        .
8
                                                                                                                                                                               MEDLINE-85261358; PubMed-2991252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216 AA; 24716 MW;
Mus musculus (Mouse).
Eukaryota; Metazoa; Chordat.
Mammalia; Eutheria; Rodenti.
                                                                                                                                                                                                                                                                                                                                                         SEGUENCE FROM N.A.
SIRAIN-FETDU: IISSUE-LIVET:
MEDLINE-96194803: PubMed-84
Das P., Weyer L., Seytert H
"Structure of the growth ho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; X02891; CAA26650.1; ...
EMBL; Z46663; CAA86658.1; ...
PIR; B23911; STMS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hormone, Pituitary, Signal SIGNAL 1 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gene 169:209-213(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSSP; P01246; IBST, MGD; MGI:95707; Gh.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                       NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query ...
Best Local Siminates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DISULFID
```

```
112 ALYLVCG -- ERGFFYTPKTRGIVEQ 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                OBMNEO
                                                                                                                                                                                                                                                                                                                                                                                                                  ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         014644 homo sapien
007369 macaca mula
007368 nacaca mula
007367 macaca mula
007367 macaca mula
007367 macaca mula
0084407 homo sapien
08443 homo sapien
08443 homo sapien
08443 homo sapien
08474 allithrix
070615 spalax leuc
088173 delphinus d
088173 mus musculu
095205 ovis aries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                09jkm4 cavia porce
08mi75 callithrix
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q8wne0 ateles geof
                                                                   September 16, 2003, 12:34:00 ; Search time 36.1868 Seconds
(without alignments)
1069.670 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                        1 MFPTIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Description
                                                                                                                                                                                                                          830525
GenCore version 5.1.6
Copyright (c) 1993 · 2003 Compugen Ltd.
                                                                                                                                                                                                                          Potal number of hits satisfying chosen parameters:
                                                                                                                                                                                                  830525 seqs, 258052604 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                              OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q8MI74
Q70615
Q8MI73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q8HYE5
Q9R2C3
Q95205
Q9JKM4
Q8MI75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q07369
Q07368
Q07367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      014407
08WND9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                014643
                                                                                                                                                                 BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                   sp_bacteria:*
sp_fungi:*
sp_fungan:*
sp_human:*
sp_invertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sp_vertebrate:*
sp_unclassified:*
                                                                                                                                                                                                                                                                                                                                                                                                                        sp_organelle:*
Sp_phage:*
sp_plant:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                 Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                            sp_rodent:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sp_virus:*
                                                                                                                                                                                                                                                                                                                                          sp_archea:*
                                                                                                                                                                                                                                                                                                                                                                                                     sp_mammal: *
                                                                                                                    US-09-423-100-7
                                                                                                                                                                                                                                                                                                                                  SPTREMBL_23:*
                                                                                                                                                                                                                                                                                                                                                                                                                sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             449.7
443.7
443.7
440.5
338.5
337.8
37.8
37.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                436
427.5
407.5
396
396
381
348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         322.5
306.5
301.5
301.5
298.5
297.5
297.5
                                                                                                                    Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score
                                                                                                                                                                  Scoring table:
                                                                                                                                           Sequence:
                                                                                                                                                                                                    Searched:
                                                                                                                                                                                                                                                                                                                                Database
                                                                        Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Result
```

0	095mj6 tarsius syr 028957 sus scrofa 08hxv2 pongo pygma 091x13 spermophilu 095240 canis famil 09pu72 cynops pyrr 08wmw6 felis silve 09bdr4 qalaqo cras	014406 homo sapien 091886 amia calva 0918q7 rana pipien 0984a pantodon bu 090265 brachydanio 090204 catla catla 090800 chitala chi	~ ~ ~ ~ ~ ~ ~
Q9TU21 09TQW9 Q9JKG0 Q9JKG0 Q9BEC0 09BEB9	0.95MJ6 0.28457 0.84XV2 0.91XI3 0.95240 0.98UV2 0.98DV4	2014406 091386 091386 091807 0987A8 0902N4 0902N4	0981A7 0981A7 0981A8 0981B1 0881B1 0881B2 008AX9
22 6 20 0 20 0 70 0 4	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	000000000000000000000000000000000000000	933 6
192 192 190 178 217 217 161	176 217 110 110 218 110 110	1000 1000 1000 1000 1000 1000 1000	110 111 108 108 93 93 91 209
66 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	38 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		223335 223335 22335 33455 335 335 335 335 335 335 335 33
290.5 289.5 287.5 286.5 285.5 285.5	283.5 280.5 271.5 266.5 265.5 261.5 246.5	23.34 23.33.5 224.5 201.5 197.6	191.5 191.5 187.5 186.5 186.5 177.5
118 118 22 23 23	22 22 30 30 43 50 60 60 60 60 60 60 60 60 60 60 60 60 60	,	7 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4

ALIGNMENTS

```
2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27 FPTIPLSRLLDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86
                                                                                                                                                                                                                             Ateles qeoffroyi (Black-handed spider monkey).
Enkaryota: Molazoa: Chordata: Clanidia: Vertebrata: Euteleostomi:
Manmalia: Entheria: Prinatos: Platyrrinin: Debidae: Ateliado: Ateles.
MOH: Taxio-9509:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                54.7%; Score 436; DB 6; Length 217;
66.9%; Pred. No. 1.4e-38;
tive 8; Mismatches 24; Indels 16; Gaps
                                                                                                                                                                                                                                                                                                                                                                                       Revol A., Esquivel D., Santiago D., Barrera-Saldana H.:
Revol A., Esquivel D., Santiago D., Barrera-Saldana H.:
Independent duplication of the growth hormone gene in three
Anthropoidean lineages.',
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
EMBL, AF374234; AAL72286.1;
EMBL, AF374234; AAL72286.1;
PHOBITE, PRO0103; hormone: 1.
PROSITE, PS00266; SOMATOTROPIN_1: 1.
PROSITE, PS00388; SOMATOTROPIN_1: 1.
SEQUENCE 217 AA: 24894 MW; 425829FF41EEAAE6 CRC64;
                                                           01-MAR-2002 (TrEMBLrel. 20, Created)
01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
PRT; 217 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 66.99
Matches 97; Conservative
   PRELIMINARY;
```

```
NCBI_TaxID=9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             007368;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                007368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       007367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 5
Q07367
       QC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DY AC DY DY DY DY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL------GTGPRFVNQHLCGSHLV 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27 FPTIPLSRLFDNAMLRARRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLFFSESIPT 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE-Midpregnancy placenta:
MEDLINE-94008724: PubMed-8404617:
Golos T.G., During H., Fisher J.M., Fowler P.D.;
"Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13: Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE—Term placenta;
MEDLINE—94; 73737; PubMed-9709963;
MEDLINE—94; 73737; PubMed-9709963;
BOGUSZEWS: U.C.L., Svensson P.A., Jansson T., Clark R.,
Carlsson L.M.S., Carlsson B.;
"Cloning of two novel growth hormone transcripts expressed in human placenta.":
J. Clin. Endocrinol. Metab. 83:2878-2885(1998).
EMBL. AF006061: ABB71829:1;
INLEFPRO: IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Fertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini Hominidae; Homo.
NCBL_TaxID-9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-MAR-2003 (TrEMBLrel. 03, Last annotation update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Chorionic somatomamotropin.3.

Macaca mulatta (Rhesus macaque).

Bukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
Cercopithecinae; Macaca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               53.6%; Score 427.5; DB 4; Lenyth 245; 71.9%; Pred. No. 1.3e-37; ative 6; Mismatches 17; Indels 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14CC7F8CD75D91C8 CRC64;
                                                                                                                                                                                                                                                                    01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
Placental growth hormone isoform hGH-V3 precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     217 AA
                                                                                                                                                                                                      245 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL
146 GIQTLMGRLEDG---SPOTGEIFRQ 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS00266; SOMATOTROPIN_1: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27101 MW;
                                                                                                                                                                                                                                                                01-JAN-1998 (TrEMBLrel. 05, 01-JAN-1998 (TrEMBLrel. 05, 01-DEC-2001 (TrEMBLrel. 19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 71.99
Matches 92; Conservative
                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam; PF00103; hormone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             111 EALYLVCG 118
                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EGIQTLIG 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE 245 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                           014644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     007369;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 907369
                                                                                                                                                                                                      014644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 3
007369
10 00734
AC 00737
DT 01-N
DT 0
                                                                                                                                                                                                          SO DRANGE SO ON THE SO ON 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
```

```
ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83
                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                                                                                                                               28 PSVPLSRLFDNIMMQAHRLHQLAFDTYQEFEKTYIPKEKKHSLMGNPQASFCFSESIPTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23 PSVPLSRLFDHAMIQAHRLHQLAFDIYQEFEEAYIPKEKKHSLMENPQASFCFADSIPTP
                                                                                                                                                                                                                                                                                                                     3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3 PTIPLSRLFUNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP
                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Golos T.G. Duraing M., Fisher J.M., Fowler P.D.,
"Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxyribonucleur acids differentially expressed during prepancy in the rhesus monkey placenta.";
Endocrinology 13:1744-1752(1993).
EMBL, L16553; AAA18840.1;
HSSP: PG1241; JAXI
                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi.
Mammalia: Eutheria: Primates. Catarrhini, Cercopithecidae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
                                                                                                                                                                                                                         Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NAR-2003 (TrEMBLrel. 23, Last annotation update)
Somatotropin 2 precursor (Growth hormone 2) (Fragment).
Macaca mulatta (Rhesus macaque).
                                                                    InterPro; IPR001400; Somatotropin.
Pfam: PF00103; hormone; 1.
PR051TE; PS00266; SOMATOTROPIN_1: 1.
PR05ITE; PS00338; SOMATOTROPIN_2: 1.
SEQUENCE 217 AA: 24874 MW; FIEB6AFDBBAIB185 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     232 AA; 24525 MW: 278091106255E6FS CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           007367;
007367;
01-NOV-1996 (TYEMBLrel. 01, Created)
01-NOV-1996 (TYEMBLrel. 01, Last sequence update)
01-NAR-2003 (TYEMBLrel. 23, Last annotation update)
Chorionic somatomammotropin-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 6;
                                                                                                                                                                                                                      51.1%; Score 407.5; DB 6
71.9%; Pred. No. 1.6e-35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              217 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3 SNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterProj 1PR064400, Somatot ropin.
Pfam. PF00163; hormone; 1.
PR0SITE; PS00338; SOMATOTROFIN_: 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
Endocrinology 133:1744-1752(1993).
EMBL: L16554; AAA18841.1; -.
HSSP; P01241; 1AXI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-94008724; PubMed-840/517;
                                                                                                                                                                                                                                                 Best Local Similarity 71.9%
Matches 82; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity 82.29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cercopithecinae, Macaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
```

```
EMBL; BC022044; AAH22044.1; ·. EMBL; BC035965; AAH35965.1; ·.
 EMBL; J03071; AAA52553.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69; Conservative
                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sest Local Similarity
                                                                                                                                                                                                                                                                                                                 Growth hormone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                 5CINM80
                                                                                                                                                                                                                                                                          6GNM80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          014643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                            RESULT 7
QBWND9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                014643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               đ
  ò
                                                                                                                                                                       q
                                                                                                                                                                                           ò
                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                            ö
                                                                  3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
                                                                                                                                                                                                                                                                          28 PSVPLSRLFDHAMIQAHRLHQLAFDTYQEFEEAXIPKEKKHSLMENPQASFCFADSIPTP 87
                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Chorionic somatomammotropin CS-2 (Chorionic somatomamnotropin hormone
                                                                                                                                                                                                                                            0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lil
BEQUENCE FROM N.A.
MEDLINE-89307277; PubMed-2744760;
Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chen E.Y., Liao Y.C., Smlun c..... Seburg P.H.;
Seeburg P.H.;
"The human growth hormone locus: nucleotide sequence, biology, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (2)
SEQUENCE FROM N.A.
MEDLINE-91102558; PubMed-1980158;
Vnencak-Jones C.L., Phillips J.A. III.;
"Hot spots for growth hormone gene deletions in homologous regions outside of Alu repeats.";
Science 250:1745-1748(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria: Primates; Catarrhini; Hominidae; Homo.
NCBL_TaxID=9606;
Macaca mulatta (Rhesus macaque).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercop:thecidae;
                                                                                                                                                                                                                         Length 217;
                                                                                                                                                                                                             49.7%; Score 396; DB 6; Length 21
82.2%; Pred. No. 2.7e-34;
No. 2.7e-34; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Strausberg R.;
Submitted (JUL-2002) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (JAN-2002) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                               217 AA
                                                                                                                                                                                                                                Local Similarity 82.2%; Pred. No. 2.7e es 74; Conservative 11; Mismatches
                                                                                                                                                                                                                                                                                                      63 SNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1996 (TrEMBLrel, 01, Created)
01-NOV-1996 (TrEMBLrel, 01, Last seq
01-MAR-2003 (TrEMBLrel, 23, Last anno
                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                              Cercopithecinae; Macaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens (Human).
                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-Placenta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE-Placenta;
                                       WCBI_TaxID=9544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Strausberg R.;
                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                          014407
                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                        RESULT 6
Q14407
  ₫
                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                         Db
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4 TIPLSRLFDNAMLKAHRLHQLAFFTTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIFTPS 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1:1111:11:111:111:111 | 111: | 111:111 | 111:1111:1 | 11: | 11: | 1111 | 111: | 1111 | 111: | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 FPIIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostom;;
Mammalia; Eutheria; Primates; Piatyrrhini; Cebidae; Atelinae; Ateles.
NCBI_TaxID=9509;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ::
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. Resultant D., Barrera-Saldana H.; Revol A., Esquivel D., Santiant D., Barrera-Saldana H.; Independent duplication of the growth hormone gene in three
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               43.7%; Score 348; DB 6; Length 217;
75.8%; Pred. No. 3.7e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Anthropoidean lineages.":
Submitted (APR-2001) to the Emmi/GenBank/DDBJ databases
EMBL: AF374-235; AAL72287.1;
InterPro: IPR001400; Somathatropin.
                                                                                                                                                                  PRINTS; PRO0836; SOMATOTROPIN.
PROSITE; PS00266; SOMATOTROPIN_1; 1.
PROSITE; PS00338; SOMATOTROPIN_2; 1.
SEQUENCE 217 AA; 24994 MW; 39+AACDDB6B2E951 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam: PF00103; hormone; 1.
PRINTS: PR00836; SOMAIOTROPIN.); 1.
PROSTIE; PS00266; SOMAIOTROPIN.); 1.
SEQUENCE: 217 AA: 25.293 MW: 74.1745A18750053E CR064;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           014643;
01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Placental growth hormone 20kDa isoform precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-MAR-2002 (TrEMBLre), 20, Created)
01-MAR-2002 (TrEMBLrel, 20, Last sequence update)
01-OCT-2002 (TrEMBLrel, 22, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match
47.8%; Score 381; D8 4; L
Best Local Similarity 82.0%; Pred. No. 1.1e-32;
Amismatches 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ateles geoffroyi (Black-handed spider monkey).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 PSNREETQQKSNLELLRIS',LLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
HSSP; P01241; 1A22.
InterPro; IPR001400; Somatotropin.
Pfam; PF00103; hormone; 1.
```

```
ehrenbergi) growth hormone."
J. Moi. Endocrinol. 22:29-36
EMBL: AJ005819; AZ406716.1;
HSSP: P01241; JAXI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Growth hormone precursor.
                                                                                                                                                  Growth hormone precursor
                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                 26
216
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
Matches (4) Conserv
                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                           NCB1_Tax1D-30637;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Delphinus.
NCBI_TaxID-9728;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE-Liver;
                                                                                                                                                                                                 Nannospalax
                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                         070615
                                                                                                                                                                                                                                                                                                                                                                                        Signal.
                                                                                                                                                                                                                                                                                                                                                                                                SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q8M173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 11
Q8M173
                                                                   RESULT 10
                                                                             070615
                               a
                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7
                                                                                                                                                                                                                                                                                                                                      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYOEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3 PTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota: Metazoa: Chordata: Cranista: Vertebrata: Euteleostom::
Mammalia: Eutheria: Primates: Platyrhini; Gallitrichidae: Ca:litrix.
NCBI_TaxID=9483;
                                                                                                                                                                                                                                                                                                    26; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Gaps
                                                                 TISSUE-Term placenta;
MEDLINE-98373737; PubMed-9709963;
BOUSZEWSKI C.L., Svensson P.A., Jansson T., Clark R.,
Carlsson L.M.S., Carlsson B.;
"Cloning of two novel growth hormone transcripts expressed in human placenta.";
                                                                                                                                                                                                                                                                                                                                                                                      Wallis O.C., Wallis M.;
Characterisation of the GH gene cluster in a new-world monkey, the
marmoset (Callithiix jacchus).":
J. Mol. Endocrinol. 0:0-0(2002).
                                                                                                                                                                                                                                                                                                                                                                        62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL-----GTGPRFVNQHL 104
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
NCBL_TaxID-9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 6; Length 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GROWTH HORMONE-LIKE PROTEIN 6. 5ECF148798278FIA CRC64;
                                                                                                                                                                                                                                                                            Length 202;
                                                                                                                                                                                                                                                                           / Match 42.8%; Score 341; DB 4; Length 202
Local Similarity 65.8%; Pred. No. 1.9e-28;
nes 75; Conservative 4; Mismatches 9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40.5%; Score 322.5; DB 6; Lengtm < 64.7%; Pred. No. 2e-26; udels
                                                                                                                                                                                                                                             POTENTIAL.
38B64D011A9197C6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation update)
                                                                                                                                   J. Clin. Endocrinol. Metab. 83:2878-2885(1998).
EMBL, 87606060, A8871828-1;
EMBL, 901241; 1A22.
InterPro. IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity 64.7%; Pred. No. 2e-26
nes 66; Conservative 13; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Growth hormone-like protein 6 precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-0CT-2002 (TrEMBLrel. 22, Created)
01-0CT-2002 (TrEMBLrel. 22, Last seq
01-MAR-2003 (TrEMBLrel. 23, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRINTS; PR00836; SOMATOTROPIN.
PROSITE; PS00338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                          PROSITE; PS00266; SOMATOTROPIN_1; 1.
PROSITE; PS00338; SOMATOTROPIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; AJ489811; CAD34012.1;
InterPro; IPR001400; Somatotropin.
Pfam; PF00103; hormone; 1.
                                                                                                                                                                                   Pfam; PF00103; hormone; 1.
PRINTS; PR00836; SOMATOTROPIN.
                                                                                                                                                                                                                                             SIGNAL 1 26 PG
SEQUENCE 202 AA; 23128 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIĞNAL 1 26 PU
CHAIN 27 217 G
SEQUENCE 217 AA; 25177 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
Homo sapiens (Human)
                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                       08M174
08M174:
                                                                                                                                                                                                                                    Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Siqnal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                             a
```

```
2 FPTIPLSRLFDNAMLKAHRLFGTAGEFEEAYIPKEQKYSFLQNPQTSLSFSFSTPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Delphinus delphis (Saddleback dolphin) (Black sea dolphin).
Eukaryota; Metazoa: Chordata; Craniata; Vertebrata; Euteleostomi:
Mammalia: Eutheria: Cetartiodactyla; Cetacea; Odontoceti; Delphinidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Maniou 2., Wallis O.C., Wallis M.; "Cloning and characterisation of the GH gene from the common dolphin (Delphins delphins).". Submitted (JUN-2002) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-99124645; PubMed-992-177;
Lioupis A., Nevo E., Wallis K.;
"Cloning and characterisation of the gene encoding mole rat (Spalax
                                                                                                                                                                                                                                                                                                                                                                                                                                        Spalax Jeucodon ehrenberg (Ehrenberg's mole rat).
Eukaryota; Metazoa: Chordata: Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia: Sciurognathi; Muridae; Spalacinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          38.5%; Score 306.5; DB 11; Length 216; 65.9%; Pred. No. 1e-24;
Live 13; Mismatches 17; Indels 1;
                                    88 FHREEMLGKSNVELLHISLLLIGSWLEPMO-RLGSIFANSQL 128
63 SNREETQQKSNLELLRISLLIQSWLEPVQLGTGPRFVNQHL 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE 216 AA; 24627 MW; EFABBA523BAOADFE CRC64;
                                                                                                                                                                                                                                                                                              01-AUG-1998 (TrEMBLrel. 07, Created)
01-AUG-1998 (TrEMBLrel. 07, Last sequence update)
01-MAR-2003 (TrEMBLrel. ?? Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-OCT-2002 (TrEMBLrel. 22, Created)
01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86 PTCKEEAQCKSDMEELRESELLESWEAPVQ 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GROWTH HORMONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62 PSNREETQOKSNLELLRISHLIJUSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam: PF00103; hormone; 1.
PRINTS; PR00836; SOMATOTROP: 1.
PROSTIE; PS00266; SOMATOTROPIN_; 1.
PROSTIE; PS00338; SOMATOTROPIN_; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22:29-36(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR001400; Somato'r pin.
```

S

```
SEQUENCE FROM N.A.
Nguyen T.N.K., Liebhaber S.
Whouse Growth Hormone Locus
Analyses.,
                                                                                                                                                                            37.58:
63.78;
                                                                                                                                                                            Query Match
Best Local Similarity 63.77
Matches 58; Conservative
                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bovidae; Caprinae; Ovis.
NCBI_TaxID=9940;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-Placenta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                    095205
                                                                                                                                                                                                                                                                                                                                          RESULT 14
095205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               datches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 15
Q9JKM4
  င်
                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                    ;
                                                                                                                                                                                        2 FPTIPLSRLFDNAMLRAHRLHQLAFDIYQEFEEAYIPKEQXYSFL,QNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 :111 | 11 | 11:111 | 11:111 | 11:11 | 11:11 | 1:11 | 1: 11:11 | 27 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGGRYS-IQNAQAAFCESETIPA 85
                                                                                                                                                                            2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQISLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1: Caps
                                                                                                                                                    1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Grawth hormony.

Grawth hormony.

Mus musculus (Mouse).

Eukaryota: Metazoa; Chordata: Craniata: Vertebrata: Euteleostomi;

Mammalia; Eutheria: Rodentia: Sciurognathi; Muridae; Murinae: Mus.

[1]
                                                                                                                                                                                                                                                                                                                                                                             Growth hormone precursor.
Alluropoda melanoleuca (Giant panda).
Eukaryota: Metazoa; Chordata: Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutherla: Carnivora; Fissiped ;; Ursidae; Ailuropoda.
                                                                                                                          DB 6; Length 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           37.8%; Score 301.5; DB 6; Length 216; 64.8%; Pred, No. 3.40-24; ative 14; Mismatches 17; Indels ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-Pituitary:
Liao M., Zhu M., Zhang A.;
Liao M., Zhu M., Zhang A.;
"Cloning and expression of cDNA encodin, growth hormone from
Alluropoda melanoleuca":
Submitted (ANG-2002) to the EMBL/GenBank/DDBJ databases.
EMBL; AF$40936; AAN7728.1;
                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIĞNAL 1 26 POTENTIAL.
SEQUENCE 216 AA: 24383 MW; 44ECITEC44BCB056 CRC64;
                                                                          1 26 POTENTIAL.
27 216 GROWTH HOKMONE.
216 AA; 24509 MW; 1EC467A84CCFEB02 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                         01-MAR-2003 (TrEMBLrel. 23, Created)
01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
                                                                                                                         r Match 37.8%; Score 301.5; DB 6; Local Similarity 64.8%; Pred. No. 3.4e-24; hes 59; Conservative 14; Mismatches 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
            Pfam: PF00103; hormone; 1.
PRINTS; PR00836; SOMATOTROFIN.
PROSITE; PS00266; SOMATOTROPIN.; 1
PROSITE; PS00338; SOMATOTROPIN.; 1.
 InterPro; IPR001400; Somatotropin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAY-2000 (TrEMBLrel. 13, 01-MAY-2000 (TrEMBLrel. 13, 01-MAK-2003 (TrEMBLrel. 23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity 64.8% les 59; Conservative
                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=9646;
                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                            Query Match
                                                               Signal.
SIGNAL
                                                                                                                                                                                                                                                                                                                  Q8HYE5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9R2C3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Signal
                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                   datches
                                                                                                                                                                                                                                                                                         RESULT 12
                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    αq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

```
ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 FPTIPLSRLFDNAMLRAHRIHQLAFCTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27 FPAMPLSSLFSNAVLRAGHLHGLADTYKELFRAYIPEGGRYS-IQNAQAAFCFSELIPA 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFBEAYIPKEQKYSFLQNPQTSLSFSESIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                Caps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-97050633; PubMed-8F ->361;
Lacrota M.C., Devinoy E., + vely J.L., Puissant C., Kann G.;
Learota M.C., Devinoy E., + vely J.L., Puissant C., Kann G.;
Expression of the growth - movey gene in ovine placenta: detection
and callular localization - the protein.";
and corinology 37:4886 489, 696;
EMBL: U49063; AAC46679.1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-FEB-1997 (TrEMBLrel. 02, Created)
01-FEB-1997 (TrEMBLrel. 02, Last sequence update)
01-MAR-2003 (TrEMBLrel. 03, Last annotation update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
01-MAR-2003 (Shep).
02.05.8 axies (Shep).
02.05.8 axies (Shep).
03.05.8 axies (Shep).
04.05.8 axies (Shep).
05.05.8 axies (Shep).
05.05.8 axies (Shep).
;
Vucleotide Sequence and Phylogenetic
                                                                                                                                                                                                                                                                                                                                                                                                                          ä
                                                                                                                                                                                                                                                                                                                                                                  %core 298.5; DB 11; Length 216;
%red. No. 7.2e-24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 204;
                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                             Submitted (AUG-1995) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          204 AA; 23462 MW: EBBB9451892635C6 CRC64;
                                                                                                                                                                                                                                                                                                              FC2A06DA02536B1B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ry Match 37.3%; Score 297.5; DB 6; t Local Similarity 64.8%; Pred. No. 8.6e-24; ches 59; Conservative 14; Mismatches 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               204 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62 PSNREETQQKSNLELI,RISLLI,IQSWLEPVQ 92
                                                                                                  EMBL. 034362; AAC99988.1;
HSSP: P01241: 1AXI.
InterPro: IPR001400: Somatotropin.
Pfam: PF00103: hormone: 1.
PR.NTS: PR00836; SOMATOTROPIN.
PROSITE: PS00256; SOMATOTROPIN.
PROSITE: PS00338: SOMATOTROPIN.
SEQUENCE 216 AA: 24682 MW. FC2A06DA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Interpro; IPRUU1460; Somatotropin, Pfam. PF00103; hormone: 1. PRINTS, PRO0835; SOMATOTROPIN. PROSITE; PS00338; SOMATOTROPIN.]; IPROSITE; PS00338; SOMATOTROPIN.]; I.
```

```
Q9JKM4 PRELIMINARY; PRT: 216 AA.
01-0CT-2000 (TrEMBLrel. 15, Created)
01-0CT-2000 (TrEMBLrel. 15, Last sequence update)
01-0CT-2000 (TrEMBLrel. 13, Last annotation update)
01-0CT-2003 (TrEMBLrel. 23, Last annotation update)
Growth hormone precursor.
Cavia porcellus (Guinea pig).
Eukaryotes in Metazoa; Chordata; Craniata: Vertebrata; Euteleostoml; Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 37.3%; Score 297.5; DB 11; Length 216; Best Local Similarity 63.7%; Pred. No. 9.2e-24; Matches 58; Conservative 14; Mismatches 18; Indels 1;
                                                                                                                                                                                                                                 (1) SEQUENCE FROM N.A.

A GOJIGO D.M., Fuller P.J., Herington A.C.;

A GOJIGO D.M., Fuller P.J., Herington A.C.;

Cloning and sequence of guinea pig growth hormone (GH).";

Submitted (FEB-2000) to the EMBL/GenBank/DDBJ databases.

EMBL, AF23853; AAF36409.1;

R HSSP; PO1241; 1AXI.

R HSSP; PO1241; 1AXI.

R FRSP; PO1040103; hormone: 1.

R PRINTS; PRO0836; SOMATOTROPIN.

R PROSITE; PS00266; SOMATOTROPIN.

R PROSITE; PS00338; SOMATOTROPIN.2; 1.

        SIĞNAL
        1
        26
        POTENTIAL.

        CHAIN
        27
        216
        GROWTH HORMONE.

        SEQUENCE
        216
        AA;
        24822
        MM;
        45996BEI19B08DD3
        CRC64;
```

2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61

62 PSNREETOOKSNLELLRISLLLIOSWLEPVO 92 |:::|| ||:|::|| |||||||||| ||| 86 PTDKEEAQORSDVELLHFSLLLIOSWLGPV(116

q

ò

Search completed: September 16, 2003, 12:40:01 Job time : 37.1868 secs

1; Gaps

•